CALIFORNIA MARINE LIFE PROTECTION ACT INITIATIVE

APPENDICES TO THE DRAFT MASTER PLAN FRAMEWORK

A Recommendation to the
California Fish and Game Commission by the
California Department of Fish & Game

August 18, 2005

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Deleted: for Alternative Networks ¶ of Marine Protected Areas

Deleted: Proposed Network

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Appendix A. The Marine Life Protection Act (MLPA)

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. Chapter 10.5 (commencing with Section 2850) is added to Division 3 of the Fish and Game Code, to read:

CHAPTER 10.5. MARINE LIFE PROTECTION ACT

2850. Marine Life Protection Act

This chapter shall be known and may be cited as the Marine Life Protection Act.

2851. Legislative Findings and Declarations

The Legislature finds and declares all of the following:

(a) California's marine protected areas (MPAs) were established on a piecemeal basis rather than according to a coherent plan and sound scientific guidelines. Many of these MPAs lack clearly defined purposes, effective management measures and enforcement. As a result, the array of MPAs creates the illusion of protection while falling far short of its potential to protect and conserve living marine life and habitat.

(b) California's extraordinary marine biological diversity is a vital asset to the state and nation. The diversity of species and ecosystems found in the state's ocean waters is important to public health and well-being, ecological health, and ocean-dependent industry.

(c) Coastal development, water pollution, and other human activities threaten the health of marine habitat and the biological diversity found in California's ocean waters. New technologies and demands have encouraged the expansion of fishing and other activities to formerly inaccessible marine areas that once recharged nearby fisheries. As a result, ecosystems throughout the state's ocean waters are being altered, often at a rapid rate.

(d) Fish and other sea life are a sustainable resource, and fishing is an important community asset. MPAs and sound fishery management are complementary components of a comprehensive effort to sustain marine habitats and fisheries.

(e) Understanding of the impacts of human activities and the processes required to sustain the abundance and diversity of marine life is limited. The designation of certain areas as sea life reserves can help expand our knowledge by providing baseline information and improving our understanding of ecosystems where minimal disturbance occurs.

(f) Marine life reserves are an essential element of an MPA system because they protect habitat and ecosystems, conserve biological diversity, provide a sanctuary for fish and other sea life, enhance recreational and educational opportunities, provide a reference point against which scientists can measure changes elsewhere in the marine environment, and may help rebuild depleted fisheries.

(g) Despite the demonstrated value of marine life reserves, only 14 of the 220,000 square miles of combined state and federal ocean water off California, or six-thousandths of 1 percent, are set aside as genuine no take areas.

(h) For all of the above reasons, it is necessary to modify the existing collection of MPAs to ensure that they are designed and managed according to clear, conservation-based goals and guidelines that take full advantage of the multiple benefits that can be derived from the establishment of marine life reserves.

2852. Definitions

The following definitions govern the construction of this chapter:

(a) "Adaptive management," with regard to marine protected areas, means a management policy that seeks to improve management of biological resources, particularly in areas of scientific uncertainty, by viewing program actions as tools for learning. Actions shall be designed so that, even if they fail, they will provide useful information for future actions, and monitoring and evaluation shall be emphasized so that the interaction of different elements within marine systems may be better understood.

(b) "Biogeographical regions" refers to the following oceanic or near shore areas, seaward from the mean high tide line or the mouth of coastal rivers, with distinctive biological characteristics, unless the master plan team establishes an alternative set of boundaries:

(1) The area extending south from Point Conception.

(2) The area between Point Conception and Point Arena.

(3) The area extending north from Point Arena.

(c) "Marine protected area" (MPA) means a named, discrete geographic marine or estuarine area seaward of the mean high tide line or the mouth of a coastal river, including any area of intertidal or subtidal terrain, together with its overlying water and associated flora and fauna that has been designated by law, administrative action, or voter initiative to protect or conserve marine life and habitat. An MPA includes marine life reserves and other areas that allow for specified commercial and recreational activities, including fishing for certain species but not others, fishing with certain practices but not others, and kelp harvesting, provided that these activities are consistent with the objectives of the area and the goals and guidelines of this chapter. MPAs are primarily intended to protect or conserve marine life and habitat, and are therefore a subset of marine managed areas (MMAs), which are broader groups of named, discrete geographic areas along the coast that protect, conserve, or otherwise manage a variety of resources and uses, including living marine resources, cultural and historical resources, and recreational opportunities.

(d) "Marine life reserve," for the purposes of this chapter, means a marine protected area in which all extractive activities, including the taking of marine species, and, at the discretion of the commission and within the authority of the commission, other activities that upset the natural ecological functions of the area, are prohibited. While, to the extent feasible, the area shall be open to the public for managed enjoyment and study, the area shall be maintained to the extent practicable in an undisturbed and unpolluted state.

2853. Redesign of MPA System: Goals and Elements

(a) The Legislature finds and declares that there is a need to reexamine and redesign California's MPA system to increase its coherence and its effectiveness at protecting the state's marine life, habitat, and ecosystems.

(b) To improve the design and management of that system, the commission, pursuant to Section 2859, shall adopt a Marine Life Protection Program, which shall have all of the following goals:

(1) To protect the natural diversity and abundance of marine life, and the structure, function, and integrity of marine ecosystems.

(2) To help sustain, conserve, and protect marine life populations, including those of economic value, and rebuild those that are depleted.

(3) To improve recreational, educational, and study opportunities provided by marine ecosystems that are subject to minimal human disturbance, and to manage these uses in a manner consistent with protecting biodiversity.
(4) To protect marine natural heritage, including protection of representative and unique marine life habitats in California waters for their intrinsic value.
(5) To ensure that California's MPAs have clearly defined objectives, effective management measures, and adequate enforcement, and are based on sound scientific guidelines.
(6) To ensure that the state's MPAs are designed and managed, to the extent possible, as a network.

(c) The program may include areas with various levels of protection, and shall include all of the following elements:
(1) An improved marine life reserve component consistent with the guidelines in subdivision (c) of Section 2857.
(2) Specific identified objectives, and management and enforcement measures, for all MPAs in the system.
(3) Provisions for monitoring, research, and evaluation at selected sites to facilitate adaptive management of MPAs and ensure that the system meets the goals stated in this chapter.
(4) Provisions for educating the public about MPAs, and for administering and enforcing MPAs in a manner that encourages public participation.
(5) A process for the establishment, modification, or abolishment of existing MPAs or new MPAs established pursuant to this program, that involves interested parties, consistent with paragraph (7) of subdivision (b) of Section 7050, and that facilitates the designation of MPAs consistent with the master plan adopted pursuant to Section 2855.

2854. Report to the Legislature

Notwithstanding Section 7550.5 of the Government Code, the State Interagency Marine Managed Areas Workgroup established by the Resources Agency shall submit its final report to the Legislature and the commission by January 15, 2000. The workgroup shall, after appropriate consultation with members of the public, determine future actions for implementing the recommendations of its final report.

2855. Master Plan for Adoption of Marine Life Protection Program

(a) The commission shall adopt a master plan that guides the adoption and implementation of the Marine Life Protection Program adopted pursuant to Section 2853 and decisions regarding the siting of new MPAs and major modifications of existing MPAs. The plan shall be based on the best readily available science.

(b)
(1) The department shall prepare, or by contract shall cause to be prepared, a master plan in accordance with this subdivision. In order to take full advantage of scientific expertise on MPAs, the department shall convene a master plan team to advise and assist in the preparation of the master plan, or hire a contractor with relevant expertise to assist in convening such a team.
(2) The team members convened pursuant to this subdivision shall have expertise in marine life protection and shall be knowledgeable about the use of protected areas as a marine ecosystem management tool. The members shall also be familiar with underwater ecosystems found in California waters, with the biology and habitat

requirements of major species groups in the state's marine waters, and with water quality and related issues.

(3) The team shall be composed of the following individuals:

(A) Staff from the department, the Department of Parks and Recreation, and the State Water Resources Control Board, to be designated by each of those departments.

(B) Five to seven members who shall be scientists, one of whom may have expertise in the economics and culture of California coastal communities.

(C) One member, appointed from a list prepared by Sea Grant marine advisers, who shall have direct expertise with ocean habitat and sea life in California marine waters.

(4) The master plan shall be prepared with the advice, assistance, and involvement of participants in the various fisheries and their representatives, marine conservationists, marine scientists, and other interested persons. In preparing the master plan, the department shall confer, to the extent feasible, with the commission, the Pacific Fishery Management Council, the National Marine Fisheries Service, the United States Navy, the United States Geological Survey's national biological survey, staff from national marine sanctuaries off California, Sea Grant researchers, marine advisers, and national parks personnel.

(5) The department may engage other experts to contribute to the master plan, including scientists, geographic information system (GIS) experts, and commercial and recreational fishermen, divers, and other individuals knowledgeable about the state's underwater ecosystems, the history of fishing effort or MPA management, or other relevant subjects.

(c) The department and team, in carrying out this chapter, shall take into account relevant information from local communities, and shall solicit comments and advice for the master plan from interested parties on issues including, but not necessarily limited to, each of the following:

(1) Practical information on the marine environment and the relevant history of fishing and other resources use, areas where fishing is currently prohibited, and water pollution in the state's coastal waters.

(2) Socioeconomic and environmental impacts of various alternatives.

(3) Design of monitoring and evaluation activities.

(4) Methods to encourage public participation in the stewardship of the state's MPAs.

2856. Master Plan Preparation and Components

(a)

(1) The department and team shall use the best readily available scientific information in preparing the master plan adopted pursuant to Section 2855, and shall organize the location-specific contents, where feasible, by biogeographical region. In preparing the plan, the department and team shall use and build upon the findings of the Sea Grant survey of protected areas in California waters, which is entitled "California's Marine Protected Areas," the report of the State Interagency Marine Managed Areas Workgroup, the Department of Parks and Recreation's planning information and documents regarding existing and potential underwater parks and reserves, maps and other information from the department's marine nearshore ecosystem mapping project, and other relevant planning and scientific materials.

(2) The master plan shall include all of the following components:

(A) Recommendations for the extent and types of habitat that should be represented in the MPA system and in marine life reserves. Habitat types described on maps shall

include, to the extent possible using existing information, rocky reefs, intertidal zones, sandy or soft ocean bottoms, underwater pinnacles, sea mounts, kelp forests, submarine canyons, and seagrass beds.

(B) An identification of select species or groups of species likely to benefit from MPAs, and the extent of their marine habitat, with special attention to marine breeding and spawning grounds, and available information on oceanographic features, such as current patterns, upwelling zones, and other factors that significantly affect the distribution of those fish or shellfish and their larvae.

(C) Recommendations to augment or modify the guidelines in subdivision (c) of Section 2857, if necessary to ensure that the guidelines reflect the most up-to-date science, including, for example, recommendations regarding the minimum size of individual marine life reserves needed to accomplish the various goals set forth in Section 2853.

(D) Recommended alternative networks of MPAs, including marine life reserves in each biogeographical region that are capable of achieving the goals in Section 2853 and designed according to the guidelines in subdivision (c) of Section 2857.

(E) A simplified classification system, which shall be consistent with the goals of Section 2853 and the guidelines in subdivision (c) of Section 2857, and which may include protections for specific habitats or species, if no system that meets these specifications has already been developed.

(F) Recommendations for a preferred siting alternative for a network of MPAs that is consistent with the goals in Section 2853 and the guidelines in subdivision (c) of Section 2857.

(G) An analysis of the state's current MPAs, based on the preferred siting alternative, and recommendations as to whether any specific MPAs should be consolidated, expanded, abolished, reclassified, or managed differently so that, taken as a group, the MPAs best achieve the goals of Section 2853 and conform to the guidelines in subdivision (c) of Section 2857.

(H) Recommendations for monitoring, research, and evaluation in selected areas of the preferred alternative, including existing and long-established MPAs, to assist in adaptive management of the MPA network, taking into account existing and planned research and evaluation efforts.

(I) Recommendations for management and enforcement measures for the preferred alternative that apply systemwide or to specific types of sites and that would achieve the goals of this chapter.

(J) Recommendations for improving the effectiveness of enforcement practices, including, to the extent practicable, the increased use of advanced technology surveillance systems.

(K) Recommendations for funding sources to ensure all MPA management activities are carried out and the Marine Life Protection Program is implemented.

(b) The team shall, as necessary, identify and define additional appropriate components of the master plan as soon as possible after enactment of this section.

2857. Department to Convene Workshops

(a) On or before July 1, 2001, the department shall convene, in each biogeographical region and to the extent practicable near major working harbors, siting workshops, composed of interested parties, to review the alternatives for MPA networks and to provide advice on a preferred siting alternative. The department and team shall develop a preferred siting alternative that incorporates information and views provided by people who live in the area and other interested parties, including economic information, to the extent possible while maintaining consistency with the goals of Section 2853 and guidelines in subdivision (c) of this section.

(b) The preferred alternative may include MPAs that will achieve either or both of the following objectives:

(1) Protection of habitat by prohibiting potentially damaging fishing practices or other activities that upset the natural ecological functions of the area.

(2) Enhancement of a particular species or group of species, by prohibiting or restricting fishing for that species or group within the MPA boundary.

(c) The preferred siting alternative shall include MPA networks with an improved marine life reserve component, and shall be designed according to each of the following guidelines:

(1) Each MPA shall have identified goals and objectives. Individual MPAs may serve varied primary purposes while collectively achieving the overall goals and guidelines of this chapter.

(2) Marine life reserves in each bioregion shall encompass a representative variety of marine habitat types and communities, across a range of depths and environmental conditions.

(3) Similar types of marine habitats and communities shall be replicated, to the extent possible, in more than one marine life reserve in each biogeographical region.

(4) Marine life reserves shall be designed, to the extent practicable, to ensure that activities that upset the natural ecological functions of the area are avoided.

(5) The MPA network and individual MPAs shall be of adequate size, number, type of protection, and location to ensure that each MPA meets its objectives and that the network as a whole meets the goals and guidelines of this chapter.

(d) The department and team, in developing the preferred siting alternative, shall take into account the existence and location of commercial kelp beds.

(e) The department and team may provide recommendations for phasing in the new MPAs in the preferred siting alternative.

2858. Peer Review of Scientific Basis for Master Plan

The department shall establish a process for external peer review of the scientific basis for the master plan prepared pursuant to Section 2855. The peer review process may be based, to the extent practicable, on the peer review process described in Section 7062.

2859. Draft of Master Plan: Due Date and Review

(a) On or before January 1, 2005, the department shall submit to the commission a draft of the master plan prepared pursuant to this chapter.

(b) On or before April 1, 2005, after public review, not less than three public meetings, and appropriate modifications of the draft plan, the department shall submit a proposed final master plan to the commission. On or before December 1, 2005, the commission shall adopt a final master plan and a Marine Life Protection Program with regulations based on the plan and shall implement the program, to the extent funds are available. The commission's

adoption of the plan and a program based on the plan shall not trigger an additional review under the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code).
(c) The commission shall hold at least two public hearings on the master plan and the Marine Life Protection Program prior to adopting the plan and program. The commission may adopt the plan and the program immediately following the second public hearing or at any duly noticed subsequent meeting.
(d) Upon the commission's adoption of the program, the commission shall submit the master plan and program description, including marine life reserve and other MPA designations, to the Joint Committee on Fisheries and Aquaculture for review and comment. Upon receipt of the plan, the joint committee shall have 60 days to review the plan and to submit written recommendations to the commission regarding the plan and program. The joint committee shall only submit a recommendation to the commission if a majority of the members agree to that recommendation. The commission shall consider all recommendations submitted by the joint committee, and may amend the program to incorporate the recommendations. If the commission does not incorporate any recommendations submitted by the joint committee, the commission shall set forth, in writing, its reasons for not incorporating that recommendation.

2860. Regulation of Commercial and Recreational Fishing or Taking of Marine Species in MPAs; Requirements of Adoption of New MPA

(a) The commission may regulate commercial and recreational fishing and any other taking of marine species in MPAs.
(b) Notwithstanding any other provision of this code, the taking of a marine species in a marine life reserve is prohibited for any purpose, including recreational and commercial fishing, except that the commission may authorize the taking of a marine species for scientific purposes, consistent with the purposes of this chapter, under a scientific collecting permit issued by the department.

2861. Review of Petitions to Add, Delete or Modify MPAs

(a) The commission shall, annually until the master plan is adopted and thereafter at least every three years, receive, consider, and promptly act upon petitions from any interested party, to add, delete, or modify MPAs, favoring those petitions that are compatible with the goals and guidelines of this chapter.
(b) Prior to the adoption of a new MPA or the modification of an existing MPA that would make inoperative a statute, the commission shall provide a copy of the proposed MPA to the Legislature for review by the Joint Committee on Fisheries and Aquaculture or, if there is no such committee, to the appropriate policy committee in each house of the Legislature.
(c) Nothing in this chapter restricts any existing authority of the department or the commission to make changes to improve the management or design of existing MPAs or designate new MPAs prior to the completion of the master plan. The commission may abbreviate the master plan process to account for equivalent activities that have taken place before enactment of this chapter, providing that those activities are consistent with this chapter.

2862. Adverse Impacts in Analysis of Projects

The department, in evaluating proposed projects with potential adverse impacts on marine life and habitat in MPAs, shall highlight those impacts in its analysis and comments related to the project and shall recommend measures to avoid or fully mitigate any impacts that are inconsistent with the goals and guidelines of this chapter or the objectives of the MPA.

2863. Department to Confer with U.S. Navy

The department shall confer as necessary with the United States Navy regarding issues related to its activities.

Appendix B. The Marine Managed Areas Improvement Act (MMAIA)

PUBLIC RESOURCES CODE SECTION 36700-36900

36600. This chapter shall be known, and may be cited, as the Marine Managed Areas Improvement Act.

36601. (a) The Legislature finds and declares all of the following:

(1) California's extraordinary ocean and coastal resources provide a vital asset to the state and nation. These resources are important to public health and well-being, ecological health, and ocean-dependent industries.

(2) The ocean ecosystem is inextricably connected to the land, with coastal development, water pollution, and other human activities threatening the health of marine habitat and the biological diversity found in California's ocean waters. New technologies and demands have encouraged the expansion of fishing and other activities to formerly inaccessible marine areas that once recharged nearby fisheries. As a result, ecosystems throughout the state's ocean waters are being altered, often at a rapid rate.

(3) California's marine managed areas (MMAs), such as refuges, reserves, and state reserves, are one of many tools for resource managers to use for protecting, conserving, and managing the state's valuable marine resources. MMAs can offer many benefits, including protecting habitats, species, cultural resources, and water quality; enhancing recreational opportunities; and contributing to the economy through such things as increased tourism and property values. MMAs may also benefit fisheries management by protecting representative habitats and reducing extractive uses.

(4) The array of state MMAs in California is the result of over 50 years of designations through legislative, administrative, and statewide ballot initiative actions, which has led to 18 classifications and subclassifications of these areas.

(5) A State Interagency Marine Managed Areas Workgroup was convened by the Resources Agency to address this issue, bringing together for the first time all of the state agencies with jurisdiction over these areas. This group's report indicates that
California's state MMAs have evolved on a case-by-case basis, without conforming to any plan for establishing MMAs in the most effective way or in a manner which ensures that the most representative or unique areas of the ocean and coastal environment are included.

(6) The report further states that California's MMAs do not comprise an organized system, as the individual sites are not designated, classified, or managed in a systematic manner. Many of these areas lack clearly defined purposes, effective management measures, and enforcement.

(7) To some, this array of MMAs creates the illusion of a comprehensive system of management, while in reality, it falls short of its potential to protect, conserve, and manage natural, cultural, and recreational resources along the California coast. Without a properly designed and coordinated system of MMAs, it is difficult for agencies to meet management objectives, such as maintaining biodiversity, providing education and outreach, and protecting marine resources.

(8) Agency personnel and the public are often confused about the laws, rules, and regulations that apply to MMAs, especially those adjacent to a terrestrial area set aside for

management purposes. Lack of clarity about the manner in which the set of laws, rules, and regulations for the array of MMAs interface and complement each other limits public and resource managers' ability to understand and apply the regulatory structure.

(9) Designation of sites and subsequent adoption of regulations often occur without adequate consideration being given to overall classification goals and objectives. This has contributed to fragmented management, poor compliance with regulations, and a lack of effective enforcement.

(10) Education and outreach related to state MMAs is limited and responsibility for these activities is distributed across many state agencies. These factors hamper the distribution of information to the public regarding the benefits of MMAs and the role they can play in protecting ocean and coastal resources.

(11) There are few coordinated efforts to identify opportunities for public/private partnerships or public stewardship of MMAs or to provide access to general information and data about ocean and coastal resources within California's MMAs.

(12) Ocean and coastal scientists and managers generally know far less about the natural systems they work with than their terrestrial counterparts. Understanding natural and human-induced factors that affect ocean ecosystem health, including MMAs, is fundamental to the process of developing sound management policies.

(13) Research in California's MMAs can provide managers with a wealth of knowledge regarding habitat functions and values, species diversity, and complex physical, biological, chemical, and socioeconomic processes that affect the health of marine ecosystems. That information can be useful in determining the effectiveness of particular sites or classifications in achieving stated goals.

(b) With the single exception of state estuaries, it is the intent of the Legislature that the classifications currently available for use in the marine and estuarine environments of the state shall cease to be used and that a new classification system shall be established, with a mission, statement of objectives, clearly defined designation guidelines, specific classification goals, and a more scientifically-based process for designating sites and determining their effectiveness. The existing classifications may continue to be used for the terrestrial and freshwater environments of the state.

(c) Due to the interrelationship between land and sea, benefits can be gained from siting a portion of the state's marine managed areas adjacent to, or in close proximity to, terrestrial protected areas. To maximize the benefits that can be gained from having connected protected areas, whenever an MMA is adjacent to a terrestrial protected area, the managing agencies shall coordinate their activities to the greatest extent possible to achieve the objectives of both areas.

36602. The following definitions govern the construction of this chapter:

(a) "Committee" is the State Interagency Coordinating Committee established pursuant to Section 36800.

(b) "Designating entity" is the Fish and Game Commission, State Park and Recreation Commission, or State Water Resources Control Board, each of which has the authority to designate specified state marine managed areas.

(c) "Managing agency" is the Department of Fish and Game or the Department of Parks and Recreation, each of which has the authority to manage specified state marine managed areas.

(d) "Marine managed area" (MMA) is a named, discrete geographic marine or estuarine area along the California coast designated by law or administrative action, and intended to protect, conserve, or otherwise manage a variety of resources and their uses. The resources and uses

may include, but are not limited to, living marine resources and their habitats, scenic views, water quality, recreational values, and cultural or geological resources. General areas that are administratively established for recreational or commercial fishing restrictions, such as seasonal or geographic closures or size limits, are not included in this definition. MMAs include the following classifications:

(1) State marine reserve, as defined in subdivision (a) of Section 36700.

(2) State marine park, as defined in subdivision (b) of Section 36700.

(3) State marine conservation area, as defined in subdivision (c) of Section 36700.

(4) State marine cultural preservation area, as defined in subdivision (d) of Section 36700.

(5) State marine recreational management area, as defined in subdivision (e) of Section 36700.

(6) State water quality protection areas, as defined in subdivision (f) of Section 36700.

(e) "Marine protected area" (MPA), consistent with the Marine Life Protection Act (Chapter 10.5 (commencing with Section 2850) of Division 3 of the Fish and Game Code) is a named, discrete geographic marine or estuarine area seaward of the mean high tide line or the mouth of a coastal river, including any area of intertidal or subtidal terrain, together with its overlying water and associated flora and fauna that has been designated by law or administrative action to protect or conserve marine life and habitat. MPAs are primarily intended to protect or conserve marine life and habitat, and are therefore a subset of marine managed areas (MMAs). MPAs include the following classifications:

(1) State marine reserve, as defined in subdivision (a) of Section 36700.

(2) State marine park, as defined in subdivision (b) of Section 36700.

(3) State marine conservation area, as defined in subdivision (c) of Section 36700.

36620. The mission of the state MMA system is to ensure the long-term ecological viability and biological productivity of marine and estuarine ecosystems and to preserve cultural resources in the coastal sea, in recognition of their intrinsic value and for the benefit of current and future generations. In support of this mission, the Legislature finds and declares that there is a need to reexamine and redesign California's array of MMAs, to establish and manage a system using science and clear public policy directives to achieve all of the following objectives:

(a) Conserve representative or outstanding examples of marine and estuarine habitats, biodiversity, ecosystems, and significant natural and cultural features or sites.

(b) Support and promote marine and estuarine research, education, and science-based management.

(c) Help ensure sustainable uses of marine and estuarine resources.

(d) Provide and enhance opportunities for public enjoyment of natural and cultural marine and estuarine resources.

36700. Six classifications for designating managed areas in the marine and estuarine environments are hereby established as described in this section, to become effective January 1, 2002. Where the term "marine" is used, it refers to both marine and estuarine areas. A geographic area may be designated under more than one classification.

(a) A "state marine reserve" is a nonterrestrial marine or estuarine area that is designated so the managing agency may achieve one or more of the following:

(1) Protect or restore rare, threatened, or endangered native plants, animals, or habitats in marine areas.

(2) Protect or restore outstanding, representative, or imperiled marine species, communities, habitats, and ecosystems.

(3) Protect or restore diverse marine gene pools.
(4) Contribute to the understanding and management of marine resources and ecosystems by providing the opportunity for scientific research in outstanding, representative, or imperiled marine habitats or ecosystems.
(b) A "state marine park" is a nonterrestrial marine or estuarine area that is designated so the managing agency may provide opportunities for spiritual, scientific, educational, and recreational opportunities, as well as one or more of the following:
(1) Protect or restore outstanding, representative, or imperiled marine species, communities, habitats, and ecosystems.
(2) Contribute to the understanding and management of marine resources and ecosystems by providing the opportunity for scientific research in outstanding representative or imperiled marine habitats or ecosystems.
(3) Preserve cultural objects of historical, archaeological, and scientific interest in marine areas.
(4) Preserve outstanding or unique geological features.
(c) A "state marine conservation area" is a nonterrestrial marine or estuarine area that is designated so the managing agency may achieve one or more of the following:
(1) Protect or restore rare, threatened, or endangered native plants, animals, or habitats in marine areas.
(2) Protect or restore outstanding, representative, or imperiled marine species, communities, habitats, and ecosystems.
(3) Protect or restore diverse marine gene pools.
(4) Contribute to the understanding and management of marine resources and ecosystems by providing the opportunity for scientific research in outstanding, representative, or imperiled marine habitats or ecosystems.
(5) Preserve outstanding or unique geological features.
(6) Provide for sustainable living marine resource harvest.
(d) A "state marine cultural preservation area" is a nonterrestrial marine or estuarine area designated so the managing agency may preserve cultural objects or sites of historical, archaeological, or scientific interest in marine areas.
(e) A "state marine recreational management area" is a nonterrestrial marine or estuarine area designated so the managing agency may provide, limit, or restrict recreational opportunities to meet other than exclusively local needs while preserving basic resource values for present and future generations.
(f) A "state water quality protection area" is a nonterrestrial marine or estuarine area designated to protect marine species or biological communities from an undesirable alteration in natural water quality, including, but not limited to, areas of special biological significance that have been designated by the State Water Resources Control Board through its water quality control planning process. "Areas of special biological significance" are a subset of state water quality protection areas, and require special protection as determined by the State Water Resources Control Board pursuant to the California Ocean Plan adopted and reviewed pursuant to Article 4 (commencing with Section 13160) of Chapter 3 of Division 7 of the Water Code and pursuant to the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (California Thermal Plan) adopted by the state board.

36710. (a) In a state marine reserve, it is unlawful to injure, damage, take, or possess any living geological, or cultural marine resource, except under a permit or specific authorization

from the managing agency for research, restoration, or monitoring purposes. While, to the extent feasible, the area shall be open to the public for managed enjoyment and study, the area shall be maintained to the extent practicable in an undisturbed and unpolluted state. Access and use for activities including, but not limited to, walking, swimming, boating, and diving may be restricted to protect marine resources. Research, restoration, and monitoring may be permitted by the managing agency. Educational activities and other forms of nonconsumptive human use may be permitted by the designating entity or managing agency in a manner consistent with the protection of all marine resources.

(b) In a state marine park, it is unlawful to injure, damage, take, or possess any living or nonliving marine resource for commercial exploitation purposes. Any human use that would compromise protection of the species of interest, natural community or habitat, or geological, cultural, or recreational features, may be restricted by the designating entity or managing agency. All other uses are allowed, including scientific collection with a permit, research, monitoring, and public recreation, including recreational harvest, unless otherwise restricted. Public use, enjoyment, and education are encouraged, in a manner consistent with protecting resource values.

(c) In a state marine conservation area, it is unlawful to injure, damage, take, or possess any living, geological, or cultural marine resource for commercial or recreational purposes, or a combination of commercial and recreational purposes, that the designating entity or managing agency determines would compromise protection of the species of interest, natural community, habitat, or geological features. The designating entity or managing agency may permit research, education, and recreational activities, and certain commercial and recreational harvest of marine resources.

(d) In a state marine cultural preservation area, it is unlawful to damage, take, or possess any cultural marine resource. Complete integrity of the cultural resources shall be sought, and no structure or improvements that conflict with that integrity shall be permitted. No other use is restricted.

(e) In a state marine recreational management area, it is unlawful to perform any activity that, as determined by the designating entity or managing agency, would compromise the recreational values for which the area may be designated. Recreational opportunities may be protected, enhanced, or restricted, while preserving basic resource values of the area. No other use is restricted.

(f) In a state water quality protection area, point source waste and thermal discharges shall be prohibited or limited by special conditions. Nonpoint source pollution shall be controlled to the extent practicable. No other use is restricted.

36711. The classifications contained in Section 36710 may not be inconsistent with United States military activities deemed mission critical by the United States military.

36725. (a) The Fish and Game Commission may designate, delete, or modify state marine recreational management areas established by the commission for hunting purposes, state marine reserves, and state marine conservation areas. The Fish and Game Commission shall consult with, and secure concurrence from, the State Park and
Recreation Commission prior to modifying or deleting state marine reserves and state marine conservation areas designated by the State Park and Recreation Commission. The Fish and Game Commission shall not delete or modify state marine recreational management areas designated by the State Park and Recreation Commission.

(b) The State Park and Recreation Commission may designate, delete, or modify state marine reserves, state marine parks, state marine conservation areas, state marine cultural preservation areas, and state marine recreational management areas. The State Park and Recreation Commission may not designate, delete, or modify a state marine reserve, state marine park, or state marine conservation area without the concurrence of the Fish and Game Commission on any proposed restrictions upon, or change in, the use of living marine resources.

(c) If an unresolved conflict exists between the Fish and Game Commission and the State Park and Recreation Commission regarding a state marine reserve, state marine park, or state marine conservation area, the Secretary of the Resources Agency may reconcile the conflict.

(d) The State Water Resources Control Board may designate, delete, or modify state water quality protection areas.

(e) The Fish and Game Commission, State Park and Recreation Commission, and State Water Resources Control Board each may restrict or prohibit recreational uses and other human activities in the MMAs for the benefit of the resources therein, except in the case of restrictions on the use of living marine resources. Pursuant to this section, and consistent with Section 2860 of the Fish and Game Code, the Fish and Game Commission may regulate commercial and recreational fishing and any other taking of marine species in MMAs.

(f) (1) The Department of Fish and Game may manage state marine reserves, state marine conservation areas, state marine recreational management areas established for hunting purposes and, if requested by the State Water Resources Control Board, state water quality protection areas.

(2) The Department of Parks and Recreation may manage state marine reserves, state marine parks, state marine conservation areas, state marine cultural preservation areas, and state marine recreational management areas. Department authority over units within the state park system shall extend to units of the state MMAs system that are managed by the department.

(3) The State Water Resources Control Board and the California regional water quality control boards may take appropriate actions to protect state water quality protection areas. The State Water Resources Control Board may request the Department of Fish and Game or the Department of Parks and Recreation to take appropriate management action.

36750. Any MMA in existence on January 1, 2002, that has not been reclassified in accordance with the Marine Life Protection Act (Chapter 10.5 (commencing with Section 2850) of Division 3 of the Fish and Game Code), shall be reclassified under the classification system described in Section 36700 by January 1, 2003, based upon the management purpose and level of resource protection at each site on January 1, 2002. Upon the reclassification of existing sites, but no later than January 1, 2003, the use of all other classifications shall cease for the marine and estuarine environments of the state, though the classifications may continue to be used for the terrestrial and freshwater environments where applicable. The reclassification process shall be the responsibility of the State Interagency Coordinating Committee established pursuant to Section 36800, and shall occur to the extent feasible in conjunction and consistent with the MMA master planning process created pursuant to the Marine Life Protection Act (Chapter 10.5 (commencing with Section 2850) of Division 3 of the Fish and Game Code).

36800. The Secretary of the Resources Agency shall establish and chair the State Interagency Coordinating Committee, whose members are representatives from those state agencies,

departments, boards, commissions, and conservancies with jurisdiction or management interests over marine managed areas, including, but not limited to, the Department of Fish and Game, Department of Parks and Recreation, California Coastal Commission, State Water Resources Control Board, and State Lands Commission. The Secretary of the Resources Agency shall designate additional members of the committee. The committee shall review proposals for new or amended MMAs to ensure that the minimum required information is included in the proposal, to determine those state agencies that should review the proposal, and to ensure consistency with other such designations in the state. The committee shall also serve to ensure the proper and timely routing of site proposals, review any proposed site-specific regulations for consistency with the state system as a whole, and conduct periodic reviews of the statewide system to evaluate whether it is meeting the mission and statement of objectives.

36850. Designation guidelines based on the classification goals adopted for the state system of MMAs shall be developed jointly by the appropriate managing agencies in cooperation with the committee on or before January 1, 2002. These guidelines shall be used to provide a general sense of requirements for designating a site in any particular classification, and may include characteristics such as uniqueness of the area or resource, biological productivity, special habitats, cultural or recreational values, and human impacts to the area. These designation guidelines shall be provided on a standard set of instructions for each classification.

36870. On or before January 1, 2002, the committee shall establish a standard set of instructions for each classification to guide organizations and individuals in submitting proposals for designating specific sites or networks of sites. On or before January 1, 2003, the relevant site proposal guidelines shall be adopted by each designating entity.

(a) At a minimum, each proposal shall include the following elements for consideration for designation as an MMA:

(1) Name of individual or organization proposing the designation.

(2) Contact information for the individual or organization, including contact person.

(3) Proposed classification.

(4) Proposed site name.

(5) Site location.

(6) Need, purpose, and goals for the site.

(7) Justification for the manner in which the proposed site meets the designation criteria for the proposed classification.

(8) A general description of the proposed site's pertinent biological, geological, and cultural resources.

(9) A general description of the proposed site's existing recreational uses, including fishing, diving, boating, and waterfowl hunting.

(b) The following elements, if not included in the original proposal, shall be added by the proposed managing agency in cooperation with the individual or organization making the proposal, prior to a final decision regarding designation:

(1) A legal description of the site boundaries and a boundary map.

(2) A more detailed description of the proposed site's pertinent biological, geological, cultural, and recreational resources.

(3) Estimated funding needs and proposed source of funds.

(4) A plan for meeting enforcement needs, including on-site staffing and equipment.

(5) A plan for evaluating the effectiveness of the site in achieving stated goals.
(6) Intended educational and research programs.
(7) Estimated economic impacts of the site, both positive and negative.
(8) Proposed mechanisms for coordinating existing regulatory and management authority, if any exists, within the area.
(9) An evaluation of the opportunities for cooperative state, federal, and local management, where the opportunities may exist.

36900. Individuals or organizations may submit a proposal to designate an MMA directly through the committee or an appropriate designating entity. Proposals submitted to a designating entity shall be forwarded to the committee to initiate the review process. Proposals for designating, deleting, or modifying MMAs may be submitted to the committee or a designating entity at any time. The committee and scientific review panel established pursuant to subdivision (b) shall annually consider and promptly act upon proposals until an MPA master plan is adopted pursuant to subdivision (b) of Section 2859 of the Fish and Game Code, and thereafter, no less than once every three years. Upon adoption of a statewide MPA plan, subsequent site proposals determined by the committee to be consistent with that plan shall be eligible for a simplified and cursory review of not more than 45 days.
(a) The committee shall review proposals to ensure that the minimum required information is included in the proposal, to determine those state agencies that should review the proposal, and to ensure consistency with other designations of that type in the state. After initial review by the coordinating committee and appropriate agencies, the proposal shall be forwarded to a scientific review panel established pursuant to subdivision (b).
(b) The Secretary of the Resources Agency shall establish a scientific review panel, with statewide representation and direction from the committee, to evaluate proposals for technical and scientific validity, including consideration of such things as site design criteria, location, and size. This panel, to the extent practical, shall be the same as the master plan team used in the process set forth in the Marine Life Protection Act (Chapter 10.5 (commencing with Section 2850) of Division 3 of the Fish and Game Code). Members shall maintain familiarity with the types and effectiveness of MMAs used in other parts of the world for potential application to California. Members shall be reimbursed reasonable costs to participate in the activities of the panel. Where feasible, advice shall be sought from the appropriate federal agencies and existing regional or statewide marine research panels and advisory groups. After review by the scientific review panel, the committee shall forward the proposal and any recommendations to the appropriate designating entity for a public review process.
(c) Designating entities shall establish a process that provides for public review and comment in writing and through workshops or hearings, consistent with the legal mandates applicable to designating entities. All input provided by the committee and scientific review panel shall be made available to the public during this process. Outreach shall be made to the broadest ocean and coastal constituency possible, and shall include commercial and sport fishing groups, conservation organizations, waterfowl groups and other recreational interests, academia, the general public, and all levels of government.
(d) This process does not replace the need to obtain the appropriate permits or reviews of other government agencies with jurisdiction or permitting authority.
(e) Nothing in this section shall be construed as altering or impeding the process identified under the Marine Life Protection Act (Chapter 10.5 (commencing with Section 2850) of Division 3 of the Fish and Game Code) or the actions of the master plan team described in that act.

Appendix C. Implementation of the Marine Life Protection Act: 1999-2004

In April 2001 a general informational two-page letter was mailed to approximately 7,000 constituents. The letter provided information about the MLPA process and asked for initial recommendations about the effectiveness of existing MPAs, possible modifications of existing MPAs, and possible additional MPAs. About half of the letters were sent to commercial fishers, for which the Department of Fish and Game (Department) maintains a comprehensive mailing list. However, at the time Department did not have an adequate mailing list for recreational anglers and other members of the public, and many constituents did not become aware of the MLPA process, in particular the July 2001 public workshops, until during or after July.

In April 2001 supplementary letters were included with the informational letters and sent to commercial fishers as well as those recreational fishing constituents in our data base at the time. This included all commercial passenger fishing vessel (CPFV) landings and the primary recreational diving and angling organizations (including CenCal Divers and United Anglers representatives). These letters contained Department fishing block maps (numbered 10 x 10 square mile areas partially or entirely within state waters) and requested informational on areas of primary use, with the intention of using this information to help reduce potential socioeconomic impacts from recommended MPAs.

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Approximately 215 responses were received during the next several months. These were of limited value to the Master Plan Team; many of the Department block maps indicated all blocks were important within a region.

Initial Draft Concepts, which identified areas the Master Plan Team thought worthy of consideration as MPAs, were developed during January to July 2001 by the Master Plan Team. They were primarily based on the recommendations of the Master Plan Team scientists. Although fishery data were considered, there was little input from constituent user groups nor was there any initial socioeconomic analysis. The team realized that the proposals would generate controversy but it was felt that the Initial Draft Concepts would serve as a starting point from which to consider public input on potential negative impacts to users. The team stated at all public workshops in July 2001 that these proposals would be revised based on public input.

Each of the four initial draft concepts was made available on Department's MLPA website, and at Department Marine Region offices, during June-July 2001, approximately two weeks before the scheduled workshops for a particular region.

The draft concepts for the four regions differed because each region is characterized by differences in environmental conditions, the status of marine populations and ecosystems, the levels of historical and on-going extraction and human use; and the extent of existing MPAs. No predetermined percentage of state waters was designated for any form of protection in any of the regions.

To meet the MLPA goals, the MLPA Master Plan Team employed the following criteria in developing the draft concepts for regional networks of MPAs for California. Design elements

included MPA location, shape, size, number, association with existing MPAs and other area-based regulations. The criteria are organized into three categories: 1) habitat; 2) size and spacing; and 3) practicality.

As stated previously, the team presented the initial draft concepts to the public at ten workshops throughout the state. An informational two-page notice was mailed to the same list of approximately 7,000 constituents in mid-June, provided to the press, and made available at Marine Region offices and on the MLPA website. In all, approximately 2,500 people attended the workshops.

The informal phase of public comment for the MLPA process was an extensive one and began with the mass mailing of the previously mentioned informational letter in mid-April 2001. From then until mid-June 2001, when the first initial draft concept (North Central Region) became available to the public, approximately 340 comments were received, primarily via letter and email. Of these approximately 215 were related to the supplementary informational letters and contained the Department block maps. Understandably, most comments were of a general nature but varied substantially in content.

Between mid-June and mid-November approximately 2,915 additional comments were received, including the following subsets: 400 individual letters, 235 form letters, 235 emails, 1,215 form emails, 420 form faxes, and 370 form postcards. It would serve no purpose to quantify these comments as for or against MPAs in general, or with the many subtle variations of compromises in between.

All comments were distributed to appropriate team members for their consideration. If comments applied only to a specific region they were sent only to the regional Master Plan Team members and to the three state agency members on the team. Although most comments were received and distributed, in general individuals did not receive acknowledgment or response. Exceptions included letters sent to the Governor or the Director of Fish and Game and subsequently forwarded to the South Central region coordinator for response.

After the July public workshops it became apparent to the team that additional venues were necessary for public input into the MLPA process. From late August to December 2001, team members within each region conducted small group meetings with constituent representatives to discuss concerns with the process and with the Initial Draft Concepts. Constituent groups were contacted based on input from Department, team members, and the constituents themselves, who often requested a meeting. An attempt was made to reach every major constituent group within each region. More than 60 individual small group meetings were held in areas throughout the state.

Regional coordinators were responsible for providing a summary of each meeting to all team members. These summaries were eventually placed on the MLPA website for public review. Many useful suggestions were made, including alternative sites and modification of existing sites, either in proposed boundaries and/or regulations. Areas were identified that would create a significant negative socioeconomic impact on users if designated as MPAs.

In October 2001, AB1673 extended by one year the deadline by which Department must present a proposed final master plan to the Fish and Game Commission. The deadline became April 1, 2003 with a final adoption date of July 1, 2003.

Then Department of Fish and Game Director Robert Hight formally announced a change in direction for the MLPA process at a legislative hearing in January 2002. The process included the formation of seven regional working groups, two in southern California, two in south-central California, one in north-central California, and two in northern California. In addition to stakeholder representatives, each group had a DFG representative, one or more Master Plan Team scientists, DFG geographic information systems (GIS) support, and a professional facilitator. The groups were intended to work towards a set of marine protected area proposals for their region. Additionally, four more DFG staff were redirected to assist with the regional working group process.

Between February and April 2002, Department MLPA staff solicited nominations for the seven working groups. In April 2002 Director Hight formally appointed approximately 150 working group members in seven regions to the MLPA process. At the same time, Department developed a web site dedicated to the MLPA process. In June 2002 Department completed an initial evaluation of existing state MPAs. These evaluations were provided to all MLPA working group members as background material for their deliberations.

A series of three initial working group meetings occurred in July of 2002, each with a professional facilitator, to begin the revised MLPA process. These initial meetings served as an orientation to the new process. Each of the seven groups then met separately two times between September 2002 and January 2003.

In September 2002, AB892 further extended the deadline by which Department must present a proposed final master plan to the Fish and Game Commission. The deadline then became January 1, 2005 with a final adoption date of December 2005.

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In February 2003 a socio-economic workshop was held in Santa Cruz to begin discussions of how to incorporate socio-economic data into the MLPA process.

Between March 2003 and January 2004 the working group process was placed on an informal hold, as Department tried to secure funding adequate to support the process through completion. In January 2004 this pause became permanent and discussions of alternative processes began.

Past Funding of MLPA Activities

Funding Directly Related to the MLPA

- *June 2000*: The David and Lucile Packard Foundation provided a grant of $49,460 to the National Fish and Wildlife Foundation for implementation of the MLPA, mostly travel and per diem costs for scientists attending meetings of the Master Plan Team. This funding was matched by Coastal Impact Assessment Program (CIAP) funds described more fully below. The combined funds supported a graduate student assistant to the

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Master Plan Team, development and maintenance of a web page for public information, and public meetings.

- *2000*: The California State Legislature appropriated and the Governor approved $2 million for implementation of the Marine Life Management Act and the MLPA. Most of this funding was expended on implementing the MLMA, although some funding provided staff support to the Master Plan Team.

- *2001-2002*: The Resources Agency provided $372,000 in federal CIAP funds to the Department of Fish and Game for MLPA implementation. This funding was directed to support of the public process and for GIS support. It is expected that the GIS support funds will be used in the 2005-2006 fiscal year.

- *2003*: The Resources Agency provided $379,000 in federal CIAP funds for biological and socioeconomic research managed by California Sea Grant in support of implementation of the MLPA. It is expected that funds will be dispersed to specific projects early in 2005.

- *2003*: The California State Legislature appropriated and the Governor approved $800,000 for fiscal year 2004 implementation of the MLPA. These funds, however, were not sufficient to fully fund the process without significant match from outside sources. Additionally, the funds would have required an equal reduction in funding from other important programs. The final 2003 budget did not include this funding.

- *2004:* The California State Legislature appropriated and the Governor approved $500,000 for MLPA implementation in fiscal year 2005 and a continuing annual appropriation for following years. Private foundations assembled $7.5 million in funding through 2006.

Related Funding

Since 1997, the Department of Fish and Game and several programs in the National Oceanic and Atmospheric Administration have provided nearly $2 million in funding for strategic habitat mapping in certain areas along the coast. Department has provided ongoing staff support through general funds and Federal Sport Fish Restoration Act grant funding of staff positions to the MLPA process. Department and several partner groups have provided support for ongoing research and monitoring in existing MPAs to help provide the scientific knowledge necessary for the MLPA.

Appendix D. Strategy for Stakeholder and Interested Public Participation

The success of the Marine Life Protection Act Initiative depends to a significant degree on meaningful public and stakeholder input into the work of the MLPA Blue Ribbon Task Force and Master Plan Science Advisory Team in developing the draft Master Plan Framework and implementing the Central Coast MLPA Project.

This strategy represents the suggestions of staff, task force members and stakeholders on ways to ensure quality public and stakeholder participation in developing the recommendations the task force delivers to the California Department of Fish and Game.

Strategies described in this document and recommended to be utilized by the MLPA Blue Ribbon Task Force through the MLPA Initiative are:

- Interested Public
  - Open meetings
  - Public comment at each meeting
  - Written public comment on draft documents
  - Responsive decision-making
  - Effective web technologies

- Stakeholders
  - Stakeholder panel presentations at task force meetings
  - Statewide interests group
  - Central coast stakeholder group
  - Roundtable discussions
  - Study tours and field trips
  - Stakeholder-hosted meetings
  - Joint fact finding
  - Local community profiles
  - Educational workshops
  - Plan for stakeholder involvement published on MLPA website

Background

Creating a collaborative, mutually beneficial relationship with stakeholders is essential to the success of any project, including the MLPA Initiative. Collaborative relationships with stakeholders can increase stability in a complex environment and expand capacity rather than diminish it under changing circumstances. Collaboration with stakeholders allows us the opportunity to deepen mutual understanding about the issues at hand, explore and integrate ideas together, generate new options and solutions that may not have been considered individually, identify and resolve areas of conflict, and ensure the long-term availability of resources to achieve mutual goals.

In recognition of these benefits, the focus of this strategy is on building a robust network of positive, mutually reinforcing stakeholder relationships and interested public involvement. This network of relationships will help ensure the success of the MLPA Initiative, and also creates an evolving structure within which the long-term goal of creating a more cohesive system of MPAs along the California coast can be achieved.

A network of relationships is supported by the Marine Life Protection Act (MLPA), which emphasizes involving affected parties, including commercial fishing interests, recreational users, conservationists, scientists and others, in developing and evaluating management proposals for marine resources. As intended by this legislation, the structure of the MLPA Initiative provides for local communities and stakeholders to share relevant knowledge, information and suggestions on statewide and regional proposals, including firsthand observations, socioeconomic information, and suggestions for monitoring, evaluation and stewardship of marine protected areas. The MLPA Blue Ribbon Task Force (Task Force), appointed by the Secretary for Resources, is fulfilling this legislative intent through a variety of strategies designed to provide opportunities for the interested public and stakeholders to positively contribute to the proposals developed by the Task Force.

There are two general categories of strategies described in this document which differentiate between "the interested public" and "stakeholders."

- The interested public strategies are those that any person, on their own initiative, can avail themselves of, to follow and provide input into the work of different groups and individuals (i.e., Task Force, Master Plan Science Advisory Team).

- Stakeholder strategies are those that will solicit the views of and involve those with a direct interest in the marine environment.

Stakeholders Defined

Stakeholders can be defined as "individuals or organizations who stand to gain or lose from the success or failure of a system" (Nuseibeh and Easterbrook, 2000). For a system of MPAs, this can include designers of the system, resource managers, coastal tourism businesses, and users of marine resources, such as fishers, divers, kayakers, researchers, underwater photographers, and boaters.

Since stakeholders are those who are impacted by or have an impact on a system of MPAs, their perspectives need to be taken into account in order for the system to ultimately be successful. Stakeholders can have positive or negative views regarding a given product or action, and often don't agree with one another, sometimes making it a challenge to reconcile their varied viewpoints.

In a user-centered process, special emphasis is placed on *one* type of stakeholder—the users of the system—arguing that user experience needs to be carefully crafted to satisfy user needs. Understanding user needs and goals is certainly *necessary*, but it will not be *sufficient* for producing a successful design of MPAs. In addition to an understanding of user needs and perspective, designing a system of MPAs needs to incorporate sound science and effective management principles, as well as the needs and desires of the general public.

Interested Public Participation

Throughout the MLPA Initiative, the general public has had, and will continue to have, regular and frequent opportunities to observe and comment on the work of the Task Force and the Master Plan Science Advisory Team (SAT). As described in the memorandum of understanding among the California Resources Agency, Department of Fish and Game and Resources Legacy Fund Foundation, the proceedings of the Task Force and SAT will be transparent to the public.

Open meetings
All meetings of the Task Force, SAT and regional stakeholder group where a majority of the members is scheduled to attend will be noticed in advance and open to the public. Meeting agendas and supporting materials will be available in advance for public review, using standard message dissemination techniques such as the Internet, email, list servers, occasional mailings and other methods on special request. Depending on the technology used at each meeting, written meeting summaries and audio and/or video recordings will be available.

Public comment at meetings
The agenda of each Task Force meeting will include the opportunity for public comments on actions to be taken by the task force, as well as a public comment period for any subject related to the MLPA Initiative. The points made will be briefly identified in the written meeting summaries.

Written public comment
The public may direct written comments to the Task Force in response to any materials made publicly available supporting the work of the Task Force, especially key documents being considered for adoption by the task force. Written comments received will be made available to the public.

Web technologies
The Task Force will enhance the MLPA Initiative website, www.dfg.ca.gov/mrd/mlpa, to include functions such as a list server and a simultaneous webcast of meetings. These and other types of functions will be implemented to the extent that the manageability and cost of these technologies is not prohibitive.

Responsive decision making
The Task Force and SAT will consider public comments and questions while developing final versions of key documents and will make an effort to articulate the ways in which comments received were reflected in decisions made or the reasons they were not, recognizing that they may not be able to respond specifically to each comment submitted.

Stakeholder Participation

The principal focus of improving stakeholder involvement in marine management and conservation draws upon years of planning and meetings with stakeholders. These strategies go beyond the traditional methods of interested public observation and comment to foster

direct and useful communication among those with a direct stake in our coastal and marine resources and those developing the draft Master Plan Framework and Central Coast MLPA Project.

Stakeholder Panels
At Task Force meetings, panels of approximately four to six stakeholders will be asked to provide their perspectives on a question or issue posed in advance of the meeting. The purpose is to encourage a cross-section of stakeholders to engage in dialogue with one another and with the Task Force and to offer recommendations or other points of consideration on an issue to be discussed by the task force at that meeting. Speakers will be selected based on expertise by the executive director and steering committee, in consultation with the MLPA Statewide Interests Group (see below).

Statewide Interests Group
This group will include representatives of key constituent groups throughout the state, to serve as an additional mechanism for two-way communication between the Task Force and its stakeholders about the approach and activities of the MLPA Initiative and about policy issues of statewide concern. This group will meet via facilitated conference call and will be convened by the chair of the Task Force or the executive director as necessary or desired, but generally about ten days after each Task Force meeting. The group will provide feedback on the previous Task Force meeting, respond to specific questions posed by the chair or executive director, and recommend panel speakers and subject matter for upcoming Task Force meetings.

Central Coast Stakeholder Group
This group will include individuals from the central coast region who provide perspectives and skills that will assist the central coast project manager and other staff in developing alternative proposals for marine protected areas in the central coast study region. The director of the Department of Fish and Game and the central coast project manager will solicit nominations, and jointly select from the nominees a group whose members are capable of working together to successfully complete the project. The group will meet regularly, most often in person, over nine to twelve months to provide input to the development of the recommendations for the Central Coast MLPA Project. The size of this group will be dependent upon the size of the region being evaluated and the range of uses in the region. The types of representatives selected may include educators, resource managers, extractive users, non-extractive users, scientists, conservation interests, members of the general public and enforcement personnel, among others.

Periodic Stakeholder Roundtable Discussions
Approximately twice a year, the Task Force will host facilitated discussions with stakeholders. The discussions will be timed to provide an opportunity for stakeholders to provide meaningful input into key work products or deliverables that are being drafted and considered by either the Task Force or SAT. The objective of the discussions will be to elicit possible solutions to challenges identified by the task force or science team.

The four strategies described above involve facilitated discussions of some type. While facilitated meetings will play a prominent role in the MLPA Initiative, there are additional tools

that can foster effective stakeholder involvement and integration of useful information, particularly in the Central Coast MLPA Project.

Study Tours and Field Trips
In a study tour/field trip, a group of task force members and MLPA stakeholders gather at relevant sites to learn more about issues related to a system of marine protected areas, visit a place where marine protected areas already have been set up, or invite participants from such an area to California. Study tours/field trips are designed to strengthen lines of communication between the task force and its stakeholders and/or to introduce task force members who are in the middle of deciding complex matters to others who have already worked their way through similar questions in a different geographic location. To the extent possible, study tours/field trips will be held in conjunction with Task Force meetings and at additional times when at least two task force members are able to participate.

Stakeholder-Hosted Meetings
Opportunities will be created for groups of task force and/or science team members to visit with stakeholders in their communities. Through these visits, Task Force and SAT members will have a rich opportunity to learn about the unique needs of the community and how various approaches to designing and managing marine protected areas could best protect both the natural resources and the key social and economic dynamics of the area. Stakeholders are encouraged to forward ideas for constituency-hosted meetings, where Task Force and SAT members will participate to the extent feasible.

Workshops
Workshops can increase stakeholder capacity to gather information relevant to the Task Force or Central Coast MLPA Project, on topics such as marine protected area management and stewardship, objectives, enforcement, monitoring and management of fisheries, or the methods and limitations of social science research. Workshops can also be a very effective method for local stakeholders to provide information and suggestions to the Task Force. Workshops will be held periodically as subject matter dictates or the need arises.

Joint Fact-Finding
Unlike the traditional coastal management process, joint fact-finding begins with collaboratively developing a common set of issues and questions. While the research itself most often is conducted by experts, defining the research objectives, agreeing on an approach (and on who conducts the research), and analyzing the resulting information can create mutual confidence in the information base for decisions. Joint fact-finding will likely be best applied in the regional project, particularly regarding issues such as impacts and benefits of alternative MPA proposals to fisheries.

Local Community Profiles
Developing local community profiles in collaboration with members of those communities can help assess and address concerns about the potential impacts of marine protected areas on the local communities. This approach links social scientists and community members, and combines data and other information available from government, business, and civic institutions in the central coast study region, to help ensure a robust discussion and evaluation of potential impacts to local communities of a system of marine protected areas. This strategy will best be applied in the regional project.

Interviews
Selective interviews in a stakeholder's community can solicit views of those known to have thoughtful views or knowledge, but are reluctant to share them in a public setting. An interview might concern itself mostly with distilling the views of a constituent or tapping into that person's special knowledge of a fishery, an area, or other important substantive matter. The interview would be conducted by a researcher or other contractor, and the interviews would be synthesized for consideration by the Task Force and SAT. This strategy will best be applied in the regional project.

Stakeholder Participation Strategy and Flow Chart

To communicate what opportunities exist for stakeholder and interested public participation, the Task Force will publish this *Strategy for Stakeholder and Interested Public Participation* document on the MLPA Initiative website and will circulate it widely to describe the interested public and stakeholder involvement activities. In addition, the Task Force will create a timeline with the major milestones of the MLPA Initiative, showing how and at what points in time these mechanisms for involvement might occur, as well as a flow chart, illustrating the different organizations and individuals involved in the MLPA Initiative and their relationship to one another.

Literature Cited

Nuseibeh, B. and S. Easterbrook. *Requirements Engineering: A Roadmap.* Proceedings of the International Conference on Software Engineering (ICSE-2000), 4-11 June 2000, Limerick, Ireland.

Appendix E: Social Science Tools and Methods

This table contains summaries of a combination of selected social science tools and methods that can be used in research design, data collection and data analysis.

Tool/Method	What Is It?	What Can It Be Used For?
Case Study Research	An in-depth investigation of issues at specific instances and locations.	To identify the attitudes, perceptions, and beliefs of most groups involved, as well as the interactions among those groups.
Comparative Research	A comparison of different analyses, that compares attributes, characteristics, or particular treatments across two or more situations.	Managers can compare certain characteristics of one MPA or compare the same group over time (also called "longitudinal comparison").
Content Analysis	A review of interview transcripts, newspapers, books, manuscripts, Web sites, or other documents to identify underlying meanings, or qualify occurrences of key words or phrases.	To help identify patterns and trends in discussions about biological, social, and political phenomena. Also to identify patterns that depict associated attitudes, perceptions, and values.
Cost-Benefit Analysis	A tool for comparing the benefits of proposed projects with the costs to identify the alternative with the maximum net benefit (benefits minus costs).	To understand the social costs and benefits of the marine protected area on to stakeholders or to identify alternatives that are the most cost-effective.
Demographic Analysis	A tool used to study the characteristics of human populations, such as size, growth, density, and distribution.	To highlight trends in the size, distribution, and density of human populations in communities.
Ethnographic Research	A method for obtaining an in-depth understanding of the history, practices, values, traditions, and circumstances of the groups and surrounding resources being studied.	To help managers better understand the stakeholder groups with whom they interact. Also, to reveal cultural values and practices, helping managers identify how these values and practices affect MPA management.
Focus Groups	A focus group is a group interview, typically involving 8 to 12 people about a specific topic.	To identify opinions, attitudes, and perceptions about a specific idea. Focus groups can also be used to inform survey development.
Geographic Information System (GIS)	A compilation of hardware, software, and data that enables users to manipulate, analyze, and display geographically referenced information.	To document human use patterns, identifying culturally sensitive areas, prioritizing regions for additional public access, or highlighting demographic trends within a community.

Tool/Method	What Is It?	What Can It Be Used For?
Historical Research	A review or analysis of past resource use and the social and population characteristics related to a particular geographic resource. A type of secondary data analysis.	To determine past social attitudes and community structure, as well as how these have changed over time. Also to identify how the attitudes, perceptions, and uses of communities and groups have evolved.
Interviewing	A method of eliciting answers to predetermined questions from one individual at a time. Questions can be modified to fit a given situation.	To collect detailed information from individuals which may not be available in written or published format. To provide insight into individual feelings and experiences.
Non-market Valuation	A method used to estimate the economic value of items that have no assignable market value, such as ecosystems and environmental services.	To estimate the value of a reef, beach, or any other resource or use that has no assignable market value.
Observation	An information-gathering technique based on personal observation and recording of human activities and behaviors.	To collect information about social groups, community behaviors, and resource use in normal-use situations.
Predictive Modeling	A technique that creates a model to simulate real-world situations to predict future conditions.	To understand possible long-term impacts of management decisions and to prevent future problems from occurring.
Rapid Rural Appraisal	A broad-level evaluation, usually through consultation with experts and stakeholders, that provides a general overview of the relationship between humans and natural resources.	To identify areas of concern in an MPA, such as safety issues or access issues, quickly and thoroughly. In addition, this type of broad-level evaluation can be used as a precursor to planning and can help justify decisions that need to be made quickly.
Secondary Data Analysis	Analysis of data that were collected by individuals other than the investigator. These data include newspapers, census data, maps, etc.	To identify or analyze characteristics of a group, populations, or issue using existing data and information.
Social Assessment	A method of data collection and analysis used to characterize the social environment in the area in which one manages (e.g., watershed, protected area).	To identify the principal stakeholders and to generate information about social structures, processes, and changes being produced in any given area or community. Used as a precursor to management planning.

Tool/Method	What Is It?	What Can It Be Used For?
Social Impact Assessment	Used to predict impacts related to implementation of management resources or policy changes.	To identify how people and communities could potentially react to changes and to predict probable impacts of the implementation of rules and regulations.
Social Network Analysis	A method used to collect, analyze, and graphically represent data that describe patterns of communication and relationships within a community.	To identify community opinion leaders and other influential individuals, as well as those most responsible for disseminating information, and to determine how new ideas or information will spread through a community and how fast.
Surveys	A standardized list of questions administered by mail, telephone, Internet, or in person.	To obtain information and opinions from a representative sample of stakeholders related to specific MPA issues.

(Adapted from NOAA Coastal Services Center, http://www.csc.noaa.gov/mpass/tooltable.html.)

Appendix F. Outline of Information Required for Marine Protected Area Proposals

The Marine Life Protection Act (MLPA) requires the development and evaluation of alternative proposals for marine protected areas (MPAs) in each biogeographical region. There are several sources of guidance regarding the contents and evaluation of MPA proposals:

- The MLPA
- Discussions of the Master Plan Team established under the MLPA
- Criteria developed by the State Interagency Coordinating Committee for Marine Managed Areas pursuant to the Marine Managed Areas Improvement Act
- Experience with establishing MPAs in California and elsewhere.

Distillation of this guidance will assist in developing and evaluating MPA proposals by identifying early in the process the required or desirable information, synthesis, analysis, and evaluation. The current limited capacity of state agencies to carry out all of these functions argues for encouraging the private sector to take on more of these activities. The more the information and analytical requirements of the MLPA are met by MPA proposals from the private sector, the more likely it will be that responsible agencies can carry out due diligence review of these proposals.

The proposed outline of information required for MPA proposals is based on the guidance identified above. Definition of key terms will require further discussion as part of the broader MLPA Initiative. Whether prepared by a public agency or by a private organization, a proposal should aim at addressing most, if not all, of the requirements listed below.

The outline is organized in four sections:

- A summary
- The setting
- The proposal
- Individual MPAs within the proposal

Summary

- Objectives of proposal
- How the proposal addresses the requirements of the MLPA and other relevant law

The Setting

- Description of region
    - Legal description of the boundaries of study area
        - Rationale for boundaries
    - Species or groups of species likely to benefit from MPAs [FGC §2856(a)(2)(B)] (See list of species at www.dfg.ca.gov/mrd/mlpa/guidelines.html and www.dfg.ca.gov/mrd/mlpa/table_inv.html.)
        - Distribution of these species in the region and beyond
        - Status of these species in the region and beyond
    - Representative or unique marine ecosystems in the region [FGC §2853(b)(1)]
        - Distribution of these ecosystems
        - Status of these ecosystems (principally “function” and “integrity”)

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Distillation of this guidance will assist in developing and evaluating MPA network proposals by identifying early in the process the required or desirable information, synthesis, analysis, and evaluation. The current limited capacity of state agencies to carry out all of these functions argues for encouraging the private sector to take on more of these activities. The more the information and analytical requirements of the MLPA are met by MPA network proposals from the private sector, the more likely it will be that responsible agencies can carry out due diligence review of these proposals.¶
¶
The proposed outline of information required for proposals for alternative networks of MPAs is based on the guidance identified above. Definition of key terms will require further discussion as part of the broader MLPA Initiative. Whether prepared by a public agency or by a private organization, a proposal should aim at addressing most, if not all, of the requirements listed below. ¶
¶
The outline is organized in four sections:¶
¶
<#>A summary¶
<#>The setting¶
<#>The proposed alternative networks¶
<#>Individual MPAs within the preferred network.¶
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Summary¶

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- Distribution of representative and unique habitats in the region generally, and specifically for species likely to benefit:
  - Rocky reefs
  - Intertidal zones
  - Sandy or soft ocean bottoms
  - Submerged pinnacles
  - Kelp forests
  - Submarine canyons
  - Seagrass beds
- Distribution of oceanic features that may influence target species, including currents and upwelling zones (FGC §2856[a]2[B])
- Current and anticipated distribution of human uses
  - Aquatic
    - Commercial fishing
    - Recreational fishing
    - Diving
    - Etc.
  - Terrestrial
    - Discharges
    - Recreation
    - Aesthetics
    - Other
- Current management of human activities affecting target species, ecosystems, and habitats
- Evaluation of current management of human activities affecting target species, ecosystems, and habitats in relations to the goals and objectives of the MLPA

The Proposal

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- Process used to develop the proposal
  - Participants and their roles
  - Sources of information

- Gap analysis
  - Description of existing MPAs
  - Adequacy of existing management plans and funding
  - Target habitats and ecosystems entirely unrepresented or insufficiently protected by existing MPAs and other management activities,

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  - Target habitats and ecosystems insufficiently protected by existing MPAs and other management activities, without replicates in the region or with replicates too widely spaced.

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- Framework for regional MPA proposal

- Regional goals and objectives for a MPA proposal
  - Relation of goals and objectives to the MLPA generally and to resource problems and opportunities in the region specifically

- General description of preferred proposal (and alternatives)
  - Spacing of MPAs and overall level of protection
  - Proposed management measures
  - Proposed monitoring for evaluating the effectiveness of the site in achieving its goals
  - Proposed research programs
  - Proposed education programs
  - Enforcement needs and means of meeting those needs
  - Funding requirements and sources
  - Proposed mechanisms for coordinating existing regulatory and management authority
  - Opportunities for cooperative state, federal, and local management,
  - Name

- Evaluation of the proposal:
  - How does the proposal emphasize:
    - areas where habitat quality does (or potentially can) support diverse and high-density populations
    - benthic habitats and non-pelagic species
    - hard bottom as opposed to soft bottom, because fishing activities within state waters have had the greatest impact on fishes associated with hard bottom, and because soft bottom habitat is interspersed within areas containing rocky habitat
    - habitats associated with those species that are officially designated as overfished, with threatened or endangered species, and productive habitats such as kelp forests and seagrass beds
  - How does the proposal include:
    - unique habitats
    - a variety of ocean conditions such as upwelling centers, upwelling shadows, bays, estuaries, and exposed and semi-protected coastlines
  - How does the proposal address existing MPAs?
  - How does the proposal include a variety of sizes and types of MPAs that:
    - Provide enough space within individual MPAs for the movement of juveniles and adults of many species
    - Achieve beneficial ratios of edge to area
    - Help to include a variety of habitats
    - Facilitate analysis of the effects of different-sized MPAs
    - Facilitate analysis of the effects of different types of MPAs
    - Provide for biological connectivity
    - Enable the use of MPAs as reference sites to evaluate the effects of climate change and other factors on marine ecosystems, without the effects of fishing
    - Enable the use of MPAs as reference sites for fisheries management,
    - Minimize the likelihood that catastrophic events will impact all replicate MPAs within a biogeographic region
    - If an MPA is less restrictive than a reserve, how do different uses and restrictions affect achieving the objectives immediately above?

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<#>Evaluation of the proposed network:¶
<#>How does the network emphasize (much of this is from the MPT):¶
<#>areas where habitat quality does (or potentially can) support diverse and high-density populations,¶
<#>benthic habitats and non-pelagic species,¶
<#>hard bottom as opposed to soft bottom, because fishing activities within state waters have had the greatest impact on fishes associated with hard bottom, and because soft bottom habitat is interspersed within areas containing rocky habitat,¶
<#>habitats associated with those species that are officially designated as overfished, with threatened or endangered species, and productive habitats such as kelp forests and seagrass beds?¶
<#>How does the network include:¶
<#>unique habitats,¶
<#>a variety of ocean conditions such as upwelling centers, upwelling shadows, bays, estuaries, and exposed and semi-protected coastlines?¶
<#>How does the network incorporate or expand upon existing MPAs that are considered to be effective?¶
<#>How does the network include a variety of sizes and types of MPAs that are dispersed in a network that does the following:¶
<#>Provide enough space within individual MPAs for the movement of juveniles and adults of many species,¶
<#>Achieve beneficial ratios of edge to area,¶
<#>Help to include a variety of habitats,¶
<#>Facilitate analysis of the effects of different-sized MPAs,¶
<#>Facilitate analysis of the effects of different types of MPAs,¶
<#>Provide a network of sources for larval dispersal that are interconnected,¶
<#>Enable the use of MPAs as reference sites to evaluate the effects of climate change and other factors on marine ecosystems, without the effects of fishing,¶
<#>Enable the use of MPAs as reference sites for fisheries management,¶
... [1]

- How does the proposal use simple and easily recognizable boundaries to facilitate identification and enforcement of MPA regulations?
- Where feasible, how does the proposal locate MPAs in areas where there is onsite presence to facilitate enforcement?
- How does the proposal consider non-extractive uses, cultural resources, and existing fisheries and fishing regulations?
- How does the proposal consider proximity to ports, safe anchorage sites, and points of access, to minimize negative impacts on people and increase benefits?
- How does the proposal facilitate monitoring of MPA effectiveness by including well-studied sites, both in MPAs and unprotected areas?
- How does the proposal consider positive and negative socioeconomic consequences?

- What are the socio-economic impacts of the proposal?
  - Current uses:
    - What are the current uses of sites within the proposal that are likely to be affected?
    - What are the likely impacts of MPAs upon these uses?
  - Future uses:
    - How are current uses expected to change in response to the sites within the proposal?
    - What are the socio-economic impacts of these changes?
  - Costs and benefits:
    - What uses are likely to benefit from sites within the proposal, and how?
    - What uses are likely to suffer from MPAs, and how?

- What is the improved marine reserve component of the proposal? (FGC §2857[c])
  - Which habitat types are represented in at least one marine reserve in this biogeographical region?
    - Do reserves include habitat types and communities across different depth ranges?
    - Do reserves include habitat types and communities across different environmental conditions?
    - Is each habitat type and community represented in at least one reserve in this region?

- Which species will benefit from the proposal and how? (See list of species at www.dfg.ca.gov/mrd/mlpa/guidelines.html and www.dfg.ca.gov/mrd/mlpa/table_inv.html.)

- How does this proposal meet the goals and guidelines of the MLPA (FGC § 2853[b]):
  - Protect the natural diversity and abundance of marine life, and the structure, function, and integrity of marine ecosystems;
  - Help sustain, conserve, and protect marine life populations, including those of economic value, and rebuild those that are depleted;

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<#>Which species will benefit from the proposed network and how? (See list of species at www.dfg.ca.gov/mrd/mlpa/guidelines.html and www.dfg.ca.gov/mrd/mlpa/table_inv.html.) ¶

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- Improve recreational, educational, and study opportunities provided by marine ecosystems that are subject to minimal human disturbance, and to manage these uses in a manner consistent with protecting biodiversity;
- Protect marine natural heritage, including protection of representative and unique marine life habitats in California waters for their intrinsic value;
- Ensure that California's MPAs have clearly defined objectives, effective management measures, and adequate enforcement, and are based on sound scientific guidelines;
- Ensure that the state's MPAs are designed and managed, to the extent possible, as a network.

- Information necessary for fulfilling required CEQA alternative analysis.

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Individual MPAs within the Proposal

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- What are the boundaries of this MPA?
- What is the total area of the MPA?
- What is the total shoreline length of the MPA?
- Does this MPA expand upon an existing MPA?
- What is the overall goal of this MPA?
- What are the objectives that serve this goal?
- What species, populations, habitats, or ecosystem functions are of most concern in this area?
  - What are the chief threats to these features?
    - Which of these threats are amenable to management?
  - What restrictions are proposed that address these threats?
  - What additional restrictions or designations (e.g. water quality protection areas) would help address these threats?
- Many of the general design issues identified for the network apply here as well.
- What features does the site display among those identified for different types of MPAs by the State Interagency Coordinating Committee for Marine Managed Areas? (See Attachment A.)

ATTACHMENT A TO APPENDIX F

Excerpted from California State Interagency Coordinating Committee for MMAs
CRITERIA FOR DESIGNATING MARINE MANAGED AREAS

Pursuant to statute, these designation criteria have been developed by the State Interagency Coordinating Committee for Marine Managed Areas to assist individuals or groups in developing site proposals. While the criteria are based on language in California law, it is not required that a site meet all of the criteria listed for a specific classification. Because different MMAs will have different goals and purposes, some of the criteria listed overlap or are mutually exclusive. All the criteria are presented here to help applicants prepare appropriate documentation. Site proposals need only address those criteria that apply to the specific site and classification being proposed (see item #6 on the application form).

[Note that the word "potential" has been added before each set of criteria in this attachment. This word has been added during development of the draft master plan framework for the MLPA Initiative and was not part of the original attachment as developed by the California State Interagency Coordinating Committee for MMAs.]

I. STATE MARINE RESERVE

A. Potential Biological Criteria

1. The proposed site will protect or restore rare, threatened, or endangered native species or habitats.

2. The proposed site will protect outstanding, representative, or imperiled marine species, communities, habitats, or ecosystems.

3. The proposed site will protect populations of one or more fish species that have been declared "overfished" by the National Marine Fisheries Service. [see www.nmfs.noaa.gov for list]

4. The proposed site will protect populations of harvested species that are of concern to state or federal fishery managers.

5. One or more habitats within the proposed site is/are designated as essential fish habitat (EFH) by the National Marine Fisheries Service. [see www.nmfs.noaa.gov for list]

6. The proposed site will protect habitat, or biological communities, populations, species or gene pools that are under-represented or not replicated in the existing network of state marine managed areas.

7. The proposed site will protect connections between geographic areas and/or habitat types, including estuarine and marine, wetland and intertidal, intertidal and subtidal, and deep and shallow water.

8. The proposed site is biologically highly productive.

9. The proposed site contains multiple habitat types.

10. The proposed site has historically received relatively heavy fishing effort, it is likely that some populations of fished species are locally depleted, and populations of fished species are expected to rebound if protected.

B. Potential Socio-Economic Criteria

1. The proposed site currently or potentially provides public access, consistent with resource protection goals.

2. The proposed site currently or potentially provides educational and interpretive activities for the public.

3. The proposed site has historically received relatively little fishing effort.

4. Designation of the proposed site is not likely to have a significant negative socio-economic impact on those who have traditionally used the area.

5. Designation of the proposed site is likely to have a positive socio-economic impact.

6. The proposed site is bordered by similar habitat in which spillover effects from protecting one or more species could benefit those fishing adjacent to the site.

C. Potential Management and Enforcement Criteria

1. The proposed site overlaps or is adjacent to an existing protected or managed area, thus facilitating enforcement.

2. The proposed site is adjacent to a populated area in which public stewardship would facilitate enforcement.

3. The proposed site has boundaries that are practical and enforceable.

4. Designating this site would lessen the impact of human uses on sensitive populations of marine or estuarine organisms.

5. The proposed site has little or no direct access from land, or the access is controlled.

6. The proposed site has or will have funding sources and/or in-kind resources for enforcement.

7. The proposed site has or will have funding sources and/or in-kind resources for management activities.

D. Potential Evaluation and Research Criteria

1. The proposed site will provide an opportunity for scientific research or monitoring in outstanding, representative, or imperiled marine habitats or ecosystems.

2. The proposed site has or will have funding for scientific research or monitoring.

3. The proposed site has been the site of previous scientific research or monitoring studies.

4. Seafloor habitat within the proposed site has been partially or totally mapped using side-scan sonar or equivalent technology.

II. STATE MARINE PARK

A. Potential Biological Criteria

1. The proposed site will protect a spacious natural system.

2. The proposed site will protect outstanding, representative, or imperiled marine species, communities, habitats, or ecosystems.

3. The proposed site will afford some protection to populations of harvested species that are of concern to state or federal fishery managers.

4. One or more habitats within the proposed site are designated as essential fish habitat (EFH) by the National Marine Fisheries Service. [see www.nmfs.noaa.gov for list]

5. The proposed site will protect habitat, or biological communities, populations or species that are under-represented or not replicated in the existing network of state marine managed areas.

6. The proposed site will protect connections between geographic areas and/or habitat types, including estuarine and marine, wetland and intertidal, intertidal and subtidal, and deep and shallow water.

7. The proposed site is biologically highly productive.

8. The proposed site contains multiple habitat types.

9. The proposed site has historically received relatively heavy fishing effort, it is likely that some populations of fished species are locally depleted, and populations of fished species are expected to increase if protected.

10. The proposed site will protect populations of one or more fish species that have been declared “overfished” by the National Marine Fisheries Service. [see www.nmfs.noaa.gov for list]

B. Potential Cultural Criteria

1. The proposed site has cultural objects or sites of historical, archaeological or scientific interest.

C. Potential Socio-Economic Criteria

2. The proposed site currently or potentially provides public access, consistent with resource protection goals.

3. The proposed site currently or potentially provides educational and interpretive activities for the public.

4. The proposed site will provide sustainable recreational opportunities in the absence of conflicting uses.

5. The proposed site will provide recreational opportunities to meet other than purely local needs.

6. The proposed site has historically received relatively little fishing effort.

7. Designation of the proposed site is not likely to have a significant negative socio-economic impact on those who have traditionally used the area.

8. Designation of the proposed site is likely to have a positive socio-economic impact.

9. The proposed site is bordered by similar habitat in which spillover effects from protecting one or more species could benefit those fishing adjacent to the area.

D. Potential Geological Criteria

1. The proposed site has outstanding or unique geological features that contribute to the biological productivity of the area.

2. The proposed site has geological features that are critical to the lifecycle of native marine or estuarine species.

E. Potential Management and Enforcement Criteria

1. The proposed site overlaps or is adjacent to an existing protected or managed area, thus facilitating enforcement.

2. The proposed site is adjacent to a populated area in which public stewardship would facilitate enforcement.

3. The proposed site has boundaries that are practical and enforceable.

4. Designating this site would lessen the impact of human activities on sensitive populations of marine or estuarine organisms.

5. The proposed site has or will have funding sources and/or in-kind resources for enforcement.

6. The proposed site has or will have funding sources and/or in-kind resources for management activities.

F. Potential Evaluation and Research Criteria

1. The proposed site will provide an opportunity for scientific research or monitoring in outstanding, representative, or imperiled marine habitats or ecosystems.

2. The proposed site has or will have funding for scientific research or monitoring.

3. The proposed site has been the site of previous scientific research or monitoring studies.

4. Seafloor habitat within the proposed site has been partially or totally mapped using side-scan sonar or equivalent technology.

III. STATE MARINE CONSERVATION AREA

A. Potential Biological Criteria

1. The proposed site will protect or restore rare, threatened, or endangered native species or habitats.

2. The proposed site will protect outstanding, representative, or imperiled marine species, communities, habitats, or ecosystems.

3. The proposed site will protect populations of one or more fish species that have been declared "overfished" by the National Marine Fisheries Service. [see www.nmfs.noaa.gov for list]

4. The proposed site will protect populations of harvested species that are of concern to state or federal fishery managers.

5. One or more habitats within the proposed site are designated as essential fish habitat (EFH) by the National Marine Fisheries Service. [see www.nmfs.noaa.gov for list]

6. The proposed site will protect habitat, or biological communities, populations, species or gene pools that are under-represented or not replicated in the existing network of state marine managed areas.

7. The proposed site will protect connections between geographic areas and/or habitat types, including estuarine and marine, wetland and intertidal, intertidal and subtidal, and deep and shallow water.

8. The proposed site is biologically highly productive.

9. The proposed site contains multiple habitat types.

10. The proposed site has historically received relatively heavy fishing effort, it is likely that some populations of fished species are locally depleted, and populations of fished species are expected to rebound significantly if protected.

B. Potential Socio-Economic Criteria

1. The proposed site currently or potentially provides public access, consistent with resource protection goals.

2. The proposed site currently or potentially provides educational and interpretive activities for the public.

3. The proposed site has historically received relatively little fishing effort.

4. Designation of the proposed site is not likely to have a significant negative socio-economic impact on those who have traditionally used the area.

5. Designation of the proposed site is likely to have a positive socio-economic impact.

6. The proposed site is bordered by similar habitat in which spillover effects from protecting one or more species could benefit those fishing adjacent to the area.

C. Potential Geological Criteria

1. The proposed site has outstanding or unique geological features that contribute to the biological productivity of the area.

2. The proposed site has geological features that are critical to the lifecycle of native marine or estuarine species.

D. Potential Management and Enforcement Criteria

1. The proposed site overlaps or is adjacent to an existing protected or managed area, thus facilitating enforcement.

2. The proposed site is adjacent to a populated area in which public stewardship would facilitate enforcement.

3. The proposed site has boundaries that are practical and enforceable.

4. Designating this site would lessen the impact of human activities on sensitive populations of marine or estuarine organisms.

5. The proposed site has living marine resources that if managed properly will allow for sustainable harvest.

6. The proposed site has or will have funding sources and/or in-kind resources for enforcement.

7. The proposed site has or will have funding sources and/or in-kind resources for management activities.

E. Potential Evaluation and Research Criteria

1. The proposed site will provide an opportunity for scientific research or monitoring in outstanding, representative, or imperiled marine habitats or ecosystems.

2. The proposed site has or will have funding for scientific research or monitoring.

3. The proposed site has been the site of previous scientific research or monitoring studies.

4. Seafloor habitat within the proposed site has been partially or totally mapped using side-scan sonar or equivalent technology.

Appendix G. Master List of Species Likely to Benefit from Marine Protected Areas

The Marine Life Protection Act requires that the Master Plan identify select species or groups of species likely to benefit from MPAs. Species likely to benefit from establishing an MPA are those whose home range, behavior, reproduction, exploitation rate or population status indicates that they may benefit from spatial management. This includes species that are directly targeted by fisheries, those which are caught incidental to fishing for the target species (bycatch) and which cannot be returned to the water with a high rate of survival, and those which may be indirectly impacted through ecological changes within MPAs. A reduction in removal of a species within MPAs has been shown worldwide to increase abundance, mean size, and reproductive potential of certain fished species[1]. These increases are seen primarily in fished species, though other species are also seen to increase.

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An equally important consideration of whether a species may benefit is the tendency of individuals of a species, which are at or above harvestable size, to move, either ontogenetically (related to growth) or seasonally (related to spawning or migration cycles). Species with a strong tendency to move will not benefit significantly from the establishment of MPAs unless individual sites are large enough to encompass their entire range of movement. These include pelagic species such as northern anchovy, Pacific sardine, Pacific mackerel, jack mackerel, Pacific herring, and California market squid, highly migratory species such as albacore, tuna (bigeye, bluefin, yellowfin tuna, and skipjack), Pacific bonito, wahoo, opah, dolphin fish, swordfish, and striped marlin, most shark species (with the possible exception of smouthhounds, leopard, and angel sharks), and other migratory species, including chinook and cojo salmon, striped bass, yellowtail, barracuda, Pacific hake, and sablefish. However, establishing MPAs in areas which are known spawning grounds for such species would benefit stocks by allowing successful spawning by those sexually mature individuals which have not been harvested in open fishing areas.

Tables G-1 and G-2 include Californian marine species which are likely to benefit from the establishment of MPAs. The list includes both harvested species and other species that may benefit from MPAs due to reduced bycatch or habitat disturbance or enhanced ecological function due to increased abundance of harvested species. This list will be refined in each regional process to indicate which species are of particular concern and are most necessary to consider in the modification or design of MPAs.

[1] Halpern, B.S. 2003. The impact of marine reserves: do reserves work and does reserve size matter? Ecological Applications 13(1) Supplement: S117-S137.

Table G-1. Finfish Species Likely to Benefit from Marine Protected Areas

Species	Primary depth range (ft.)	Primary geographic range within state	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential dispersal]	Potential for adult dispersal
Bass, barred sand	0-120	southern California mainland	soft bottom less than 30 ft, eel grass beds	sand bottom	aggregate over sand in summer – early fall for spawning	planktonic	3-4 weeks	moderate
Bass, giant sea	15-150	southern California mainland and islands	rocky reefs, kelp beds, sand bottom	rocky reefs, kelp beds, sand flats	aggregate for several months during spawning	planktonic	one month; settle at ~ ¾ in.	moderate
Bass, kelp	0-75	southern California mainland and islands (uncommon central Calif.)	rocky reefs, kelp beds, eel grass beds	rocky reefs, kelp beds	aggregate in kelp beds and over rocky reefs for spawning in late May- September	planktonic	28-30 days	moderate
Bass, spotted sand	0-200	Santa Monica Bay and south	sand, mud, jetties, eel grass beds	soft bottom, kelp forests, eel grass beds, jetties	aggregate near bays to spawn in summer	planktonic	25-31 days	low
Blacksmith	0-150	southern California (to Monterey Bay)	rocky reefs	rocky reefs, kelp beds	demersal eggs in nests; defended by male	planktonic	short to moderate	moderate
Bocaccio	0-1050	All	over hard and soft bottom	midwater over hard bottom	live-bearing	planktonic	moderate	moderate
Cabezon	0-250	All regions, including islands	rocky reefs, breakwaters, kelp beds, tide pools, open ocean	rocky reefs, kelp beds	eggs adhesive, attach to substrate, often macroalgae	planktonic	3-4 months	low
Chilipepper	0-1080	All	soft bottom	midwater over hard bottom	live-bearing	planktonic	moderate	moderate
Corbina, California	0-45	southern California mainland	soft bottom, nearshore including surf zone	soft bottom, surf zone and bays	growth rate faster in estuaries; spawn offshore	planktonic	short	low
Cowcod	68-1200	All	soft and hard bottom	hard bottom, canyons	live-bearing	planktonic	moderate	low

Species	Primary depth range (ft.)	Primary geographic range within state	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential dispersal]	Potential for adult dispersal
Croaker, black	0-150	southern California mainland	soft bottom, nearshore including surf zone	soft bottom, surf zone; occasionally rocky reefs	one of few croakers to prefer rocky reefs and kelp beds	planktonic	short	low
Croaker, white	0-420	All; most common Point Reyes to Mexico border	near bottom in shallow soft habitat	soft bottom, primarily nearshore and estuaries	schooling; multiple spawning each year; adults in deeper water than juveniles	planktonic; larvae become epibenthic	short	low
Croaker, yellowfin	0-150	mainland, Pt. Conception south	soft bottom, nearshore and estuaries	soft bottom, beaches and piers, estuaries, kelp beds	spawning primarily in summer	planktonic	short	low
Eel, wolf	Intertidal to 600	northern and central California	pelagic	rocky reefs, kelp beds	not a true eel; spawn Oct.-February	planktonic ?	1-2 months	moderate
Flounder, starry	Shallow - 900	northern and central California	estuaries and bays, nearshore soft bottom	soft bottom; estuaries and bays to upper slope	spawn near river mouths and in estuaries and bays	planktonic	25-75 days	moderate
Garibaldi	0-95	southern California	rocky reefs, kelp beds	rocky reefs, kelp beds	males guard eggs, attached to red algae	planktonic	unknown	low
Goby, bluebanded	0-210 incl. intertidal	southern California (uncommon to Monterey)	rocky reefs	rocky reefs, kelp beds	males guard eggs, attached on brood chambers	planktonic	unknown	low
Goby, zebra	Intertidal to 200	southern California	rocky reefs	rocky reefs, usually in crevices and caves	demersal eggs, attached to roof of shelter	planktonic	unknown	low
Greenling, kelp	0-150	northern and central California	rocky reefs, kelp beds	rocky reefs, kelp beds	eggs adhere to rocky substrate	planktonic	unknown	moderate
Greenling, rock	shallow	northern and central California	rocky reefs, kelp beds	rocky reefs, kelp beds	eggs adhere to rocky substrate	planktonic	unknown	moderate

Species	Primary depth range (ft.)	Primary geographic range within state	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential dispersal]	Potential for adult dispersal
Grunion, California	0-60	southern and central California	sandy nearshore areas	sandy nearshore areas	eggs deposited on sandy beaches; lack filaments	planktonic	low to moderate	moderate
Guitarfish, shovelnose	0-50	southern and central California	as adults	shallow sand or mud, open coast, bays, and estuaries	live-bearing	benthic	none	moderate
Hagfish, Pacific	30-3096	All	?	soft bottom	deposit egg cases	?	unknown	moderate
Halfmoon	0-130	southern California	rocky reefs, kelp beds	rocky reefs, kelp beds	regulates kelp growth by grazing	planktonic	unknown	moderate
Halibut, California	0-300	All	estuaries, shallow open coast soft bottom	estuaries and soft bottom open coast	distribution influenced by El Niño events	planktonic	< 30 days	moderate
Jacksmelt	shallow	All	kelp and eel grass beds; sandy beaches; harbors	kelp and eel grass beds; sandy beaches; harbors	eggs with filaments for attachment to eel grass and shallow algal beds	planktonic	low	moderate
Lingcod	0-1400	All	rocky reefs, kelp beds, hard bottom, soft bottom	rocky reefs, kelp beds, hard bottom, soft bottom	Spawns nearshore on rocky reefs; males guard eggs	planktonic	3 months	high
Lizardfish, California	5-750	southern and central California	primarily soft bottom	primarily soft bottom	rest on bottom using pelvic fins	planktonic	unknown	moderate
Midshipman, plainfin	0-1000	All	soft bottom	soft bottom; spawn on hard substrate	Eggs deposited on rocks and hard substrate	planktonic	unknown	moderate
Opaleye	0-95	southern and central California	rocky intertidal	rocky reefs, kelp beds	regulates kelp growth by grazing	planktonic	unknown	moderate
Pacific ocean perch	180-2100	All	midwater over hard bottom	midwater over hard bottom	live-bearing	planktonic	moderate	moderate
Pacific pompano (Butterfish)	30-300	All	coastal pelagic	coastal pelagic	a schooling species;	planktonic	unknown	moderate

Species	Primary depth range (ft.)	Primary geographic range within state	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential dispersal]	Potential for adult dispersal
Prickleback, monkeyface	0-80	northern and central California	rocky intertidal	rocky reefs, kelp beds	deposit eggs on rocky substrate	planktonic	low	low
Prickleback, rock	0-60	northern and central California	rocky intertidal	rocky reefs, shallow	deposit eggs on rocky substrate	planktonic	low	low
Queenfish	0-180	southern and central California	soft bottom	shallow water and sandy bottom; in bays and sloughs	spawn at night from March to September	planktonic	short	moderate
Ray, bat	0-150	All	shallow soft bottom; bays and estuaries	shallow sandy and rocky areas, including bays and estuaries; kelp beds	live-bearing	miniature adults	none	moderate
Rockfish, aurora	600-1800	All	soft bottom	hard and soft bottom	live-bearing	planktonic	moderate	moderate
Rockfish, bank	102-810	All	midwater	midwater over hard bottom, drop offs	live-bearing	planktonic	moderate	moderate
Rockfish, black	0-1200	northern and central California	soft bottom	rocky reefs, kelp forests	live-bearing	planktonic	moderate	moderate
Rockfish, black-and-yellow	0-120	southern and central California	shallow rocky reefs	shallow rocky reefs, kelp forests	live-bearing	planktonic	Low to moderate	low
Rockfish, blackgill	720-1800 (juv.<660)	All	soft bottom	hard bottom, soft bottom, canyons, steep drop offs	live-bearing	planktonic	moderate	moderate
Rockfish, blue	0-300	All	rocky reefs, kelp forests, soft bottom	rocky reefs, kelp forests	live-bearing	planktonic	moderate	moderate
Rockfish, brown	0-420	All	low-relief hard and soft bottom	low-relief hard and soft bottom	live-bearing	planktonic	low to moderate	low

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Species	Primary depth range (ft.)	Primary geographic range within state	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential dispersal]	Potential for adult dispersal
Rockfish, calico	60-840	southern and central California	soft bottom	hard bottom, sand-rock and mud-rock interface	live-bearing	planktonic	moderate	low
Rockfish, canary	0-900	northern and central California	soft bottom; sand-rock interface	midwater and near bottom over hard bottom	live-bearing	planktonic	moderate	moderate to high
Rockfish, China	36-420	northern and central California	rocky reefs	rocky reefs, kelp forests	live-bearing	planktonic	low to moderate	low
Rockfish, copper	0-600	All	rocky reefs and soft bottom	rocky reefs, kelp forests	live-bearing	planktonic	moderate	low
Rockfish, darkblotched	240-1800	All	soft bottom	soft and hard bottom	live-bearing	planktonic	moderate	moderate
Rockfish, flag	100-600	southern and central California	rocky reefs	rocky reefs, canyons	live-bearing	planktonic	Moderate	low
Rockfish, freckled	130-550	southern California	soft bottom	hard bottom	live-bearing	planktonic	Moderate	low?
Rockfish, gopher	0-180	southern and central California	rocky reefs	rocky reefs, kelp forests	live-bearing	planktonic	low to moderate	low
Rockfish, grass	0-150	All	shallow rocky reefs	shallow rocky reefs, kelp forests	live-bearing	planktonic	moderate	low
Rockfish, greenblotched	200-1300	southern and central California	soft bottom	hard and soft bottom, canyons	live-bearing	planktonic	moderate	low
Rockfish, greenspotted	160-660	southern and central California	soft bottom	hard bottom, canyons	live-bearing	planktonic	moderate	low
Rockfish, greenstriped	200-1320	All	soft bottom	low relief hard bottom, soft bottom	live-bearing	planktonic	moderate	moderate
Rockfish, halfbanded	192-1320	southern and central California	soft bottom	low relief hard and soft bottom, cobble	live-bearing	planktonic	moderate	moderate
Rockfish, honeycomb	90-250	southern California	soft bottom	hard bottom	live-bearing	planktonic	moderate	
Rockfish, kelp	0-150	southern and central California	kelp forests and rocky reefs	kelp forests	live-bearing	planktonic	moderate	low

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Species	Primary depth range (ft.)	Primary geographic range within state	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential dispersal]	Potential for adult dispersal
Rockfish, Olive	0-480	southern and central California	kelp forests, soft bottom	rocky reefs, kelp forests	live-bearing	planktonic	moderate	low
Rockfish, pink	250-1200	southern and central California	soft bottom	hard bottom, canyons	live-bearing	planktonic	moderate	low
Rockfish, pinkrose	325-960	southern and central California	soft bottom	hard bottom, canyons	live-bearing	planktonic	moderate	low
Rockfish, quillback	75-900	northern and central California	rocky reefs	rocky reefs	live-bearing	planktonic	moderate	low
Rockfish, redbanded	300-1560	All	soft bottom	soft and hard bottom	live-bearing	planktonic	moderate	low
Rockfish, redstripe	300-1200	northern and central California	hard bottom	hard bottom	live-bearing	planktonic	moderate	moderate
Rockfish, rosethorn	390-1800	northern and central California	soft and hard bottom	hard bottom, canyons	live-bearing	planktonic	moderate	low
Rockfish, rosy	50-420	All	soft and hard bottom	hard bottom	live-bearing	planktonic	moderate	low
Rockfish, sharpchin	300-1050	All	hard bottom	hard bottom	live-bearing	planktonic	moderate	moderate
Rockfish, shortbelly	0-930	All	midwater over hard bottom	midwater over hard bottom	live-bearing	planktonic	moderate	moderate
Rockfish, speckled	100-1200	All	hard bottom	hard bottom	live-bearing	planktonic	moderate	moderate
Rockfish, splitnose	700-1560	All	soft bottom	hard bottom, canyons	live-bearing	planktonic	moderate	moderate
Rockfish, squarespot	60-600	All	hard bottom	hard bottom	live-bearing	planktonic	moderate	moderate
Rockfish, starry	80-900	southern and central California	hard bottom	hard bottom	live-bearing	planktonic	moderate	low
Rockfish, stripetail	192-1320	All	soft bottom	soft and hard bottom	live-bearing	planktonic	moderate	moderate
Rockfish, swordspine	250-1420	southern and central California	soft bottom	hard bottom, canyons	live-bearing	planktonic	moderate	low
Rockfish, tiger	200-900	northern and central California	hard bottom	hard bottom	live-bearing	planktonic	moderate	low

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Species	Primary depth range (ft.)	Primary geographic range within state	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential dispersal]	Potential for adult dispersal
Rockfish, treefish	0-150	southern and central California	rocky reefs	rocky reefs, kelp forests	live-bearing	planktonic	moderate	low
Rockfish, vermilion	0-900	All	soft and hard bottom	wide depth range, rocky reefs, kelp forests, canyons	live-bearing	planktonic	moderate	low
Rockfish, widow	0-1200	All	midwater over hard bottom	midwater over hard bottom	live-bearing	planktonic	moderate	moderate
Rockfish, yelloweye	150-1200	northern and central California	rocky reefs	hard bottom, canyons	live-bearing	planktonic	moderate	low
Rockfish, yellowtail	0-1800	All	midwater	midwater over hard bottom	live-bearing	planktonic	moderate	moderate
Sanddab, Pacific	30-1800	All	soft bottom	soft bottom	may spawn twice a year	planktonic	unknown	moderate
Sargo	0-130	southern California	rocky reefs, kelp beds, sand	rocky reefs, kelp beds, sand bottom	broadcast spawners	planktonic	unknown	moderate
Scorpionfish, California	0-600	southern California	reef systems	hard and soft bottom	adults aggregate in 12 to 360 feet to spawn; eggs released in gelatinous masses that float to surface	planktonic	unknown	low
Sculpin, staghorn	0-300	All	soft bottom, estuaries	soft bottom, estuaries	abundant in San Francisco estuary	planktonic	unknown	moderate
Seabass, white	0-400	southern and central California occurs farther north during El Niño events	sandy area, estuaries, piers, jetties, kelp beds	kelp beds. rocky reefs, offshore banks, open ocean	adults aggregate in spring-summer during spawning	planktonic		high
Shark, brown smoothhound	0-360	All	bays and estuaries	soft bottom, bays and estuaries, nearshore	live-bearing	miniature adults	zero	moderate

Species	Primary depth range (ft.)	Primary geographic range within state	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential dispersal]	Potential for adult dispersal
Shark, gray smoothhound	0-150	All	bays and estuaries	soft bottom, bays and estuaries, nearshore	live-bearing	miniature adults	zero	moderate
Shark, horn	0-492	southern California	rocky reefs, kelp beds	rocky reefs, kelp beds	lay egg cases	miniature adults	zero	moderate
Shark, leopard	0-300	All	enclosed bays and sloughs; kelp beds; shallow sandy areas	enclosed bays and sloughs; kelp beds; shallow sandy areas near reefs	aggregate in very shallow water to release young; live-bearing	miniature adults	zero	moderate
Shark, Pacific angel	3-600	southern and central California	flat, sandy bottoms;	flat, sandy bottoms; sand channels between reefs	live-bearing	miniature adults	zero	moderate
Sheephead, California	0-180	southern and central California	rocky reefs, kelp beds	rocky reefs, kelp beds	changes sex from female to male with size	planktonic	unknown	low
Skate, big	10-360	northern and central California	soft bottom	soft bottom, occasionally rocky reefs	young hatch from eggs in cases	miniature adults	zero	moderate
Skate, California	60-2200	All	soft bottom	soft bottom	young hatch from eggs in cases	miniature adults	zero	moderate
Skate, longnose	180-2040	All	soft bottom	soft bottom	young hatch from eggs in cases	miniature adults	zero	moderate
Smelt, night	0-420	northern and central California	soft bottom	shallow sandy coastal areas	spawn in surf zone at night	planktonic	low to moderate	moderate
Smelt, surf	shallow	northern and central California	soft bottom	shallow sandy coastal areas	spawn in surf zone in daytime	planktonic	low to moderate	moderate
Smelt, whitebait	0-180	northern and central California	soft bottom	shallow sandy coastal areas, bays, and estuaries	spawn in sandy subtidal areas	planktonic	low to moderate	moderate
Sole, Dover	60-3000	All	soft bottom, deep water	soft bottom, deep water	a portion of the stock migrates	planktonic	at least 1 year	moderate
Sole, English	60-1000	All	soft bottom, shelf	soft bottom	migrates, spawns at 200-360 ft	planktonic	6-10 weeks	moderate

Species	Primary depth range (ft.)	Primary geographic range within state	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential dispersal]	Potential for adult dispersal
Sole, petrale	60-1500	All	soft and hard bottom, shelf	soft and hard bottom, shelf	migrates, spawns at 900-1200 ft	planktonic	unknown	moderate
Sole, rex	60-2100	All	Soft bottom, shelf and slope	soft bottom, shelf and slope	spawns at 300-900 ft	planktonic	at least 1 year	moderate
Sole, rock	50-1200	northern and central California	soft and hard bottom, shelf	soft and hard bottom, shelf	one of few flatfishes found on rocky bottom	planktonic	unknown	moderate
Sole, sand	5-312	northern and central California	Soft bottom, nearshore, estuaries	soft bottom, nearshore	one of few medium-large flatfish found inshore	planktonic	unknown	moderate
Sole, slender	250-1700	All	soft bottom, shelf and slope	soft bottom, shelf and slope	relatively abundant offshore species	planktonic	moderate	moderate
Surfperch, barred	0-240	southern and central California	beaches	beaches	bear live, free-swimming young	not applicable	not applicable	moderate
Surfperch, black	0-130	All	rocky reef, kelp beds	rocky reef, kelp beds	bear live, free-swimming young	not applicable	not applicable	moderate
Surfperch, calico	0-30	All	beaches	beaches	bear live, free-swimming young	not applicable	not applicable	moderate
Surfperch, pile	0-150	All	rocky reefs, kelp beds, soft bottom	rocky reefs, kelp beds, soft bottom	bear live, free-swimming young	not applicable	not applicable	moderate
Surfperch, rainbow	0-130	All	rocky reef, kelp beds	rocky reef, kelp beds	bear live, free-swimming young	not applicable	not applicable	moderate
Surfperch, redtail	0-60	northern and central California	beaches	beaches	bear live, free-swimming young	not applicable	not applicable	moderate
Surfperch, rubberlip	0-150	All	rocky reefs, kelp beds, soft bottom	rocky reefs, kelp beds, soft bottom	bear live, free-swimming young	not applicable	not applicable	moderate
Surfperch, shiner	0-480	All	estuaries, soft bottom, kelp beds, rocky reef	estuaries, soft bottom, kelp beds, rocky reef	bear live, free-swimming young	not applicable	not applicable	moderate to high(?)
Surfperch, striped	0-55	All	rocky reef, kelp beds	rocky reef, kelp beds	bear live, free-swimming young	not applicable	not applicable	moderate
Surfperch, walleye	0-60	All	beaches	beaches	bear live, free-swimming young	not applicable	not applicable	moderate

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Species	Primary depth range (ft.)	Primary geographic range within state	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential dispersal]	Potential for adult dispersal
Surfperch, white	0-140	All	rocky reefs, kelp beds, soft bottom	rocky reefs, kelp beds, soft bottom	bear live, free-swimming young	not applicable	not applicable	moderate
Thornyhead, longspine	1090-5000	All	deep hard and soft bottom	deep hard and soft bottom; slope	lack swim bladder; may survive after being brought to surface and released; spawn gelatinous floating egg masses	planktonic	unknown	moderate to high
Thornyhead, shortspine	84-5000+	All	deep hard and soft bottom	deep hard and soft bottom; slope	lack swim bladder; may survive after being brought to surface and released; spawn gelatinous floating egg masses	planktonic	unknown	moderate to high
Tomcod, Pacific	0-720	northern and central California	unknown	soft bottom	broadcast spawners; high fecundity	planktonic	unknown	moderate
Topsmelt	shallow	All	kelp and eel grass beds; sandy beaches, harbors	kelp and eel grass beds; sandy beaches, harbors	spawns in eel grass and algal beds, possibly kelp beds; eggs attach to spawning substrate by adhesive filaments	planktonic	low	moderate
Turbot, C-O	shallow-966	All	rocky reef, sand; shelf	rocky reef, sand; shelf	one of few flatfishes to occur in kelp beds	planktonic	unknown	moderate
Turbot, curlfin	25-1146	All	soft bottom	soft bottom; shelf	small mouth; difficult to catch with hook-and-line	planktonic	unknown	moderate
Whitefish, ocean	0-300	southern and central California	unknown	midwater over hard and soft bottom	responds favorably to El Niño conditions	planktonic	unknown	moderate

Table G-2. Invertebrate, Alga, and Plant Species Likely to Benefit from Marine Protected Areas

Species	Primary depth range (ft.)	Primary geographic range within state	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential dispersal]	Potential for adult dispersal
Invertebrates								
Abalone, black	Intertidal	southern and central California	crevices in rocky reefs, kelp beds	rocky reefs, kelp beds	susceptible to withering syndrome disease	planktonic	4-7 days	low
Abalone, flat	20-70	All regions, including islands	crevices in rocky reefs, kelp beds	rocky reefs, kelp beds	generally a cryptic species	planktonic	4-7 days	low
Abalone, green	subtidal To 20	South, mainland and islands	crevices in rocky reefs, kelp beds	rocky reefs, kelp beds	feed on drift algae	planktonic	4-7 days	low
Abalone, pink	20-120	South, mainland and islands	crevices in rocky reefs, kelp beds. rock outcrops	rocky reefs, kelp beds. rock outcrops	generally occurs where water temp is above 14 C	planktonic	4-7 days	low
Abalone, pinto	subtidal to 70	northern and central California	crevices in rocky reefs, kelp beds	rocky reefs, kelp beds	commonly found at approx. 4-inch length	planktonic	4-7 days	low
Abalone, red	Intertidal to 80	All regions, including islands	crevices in rocky reefs, kelp beds, boulder outcrops, under canopy of red urchins	rocky reefs, kelp beds, boulder outcrops	largest abalone species in the world	planktonic	4-7 days	low
Abalone, threaded	20-80	South, mainland and islands	crevices in rocky reefs, kelp beds	rocky reefs, kelp beds	some consider it a subspecies of Pinto abalone	planktonic	4-7 days	low
Abalone, white	80-200	South, mainland and islands	exposed rocky areas	exposed rocky areas	maximum age estimated at 40 years	planktonic	4-7 days	low
Clam, California jackknife	Intertidal to	South, mainland and islands	sandy mud, estuaries	sandy mud, estuaries	occupies a permanent burrow	planktonic	unknown	low
Clam, chione (several species)	Intertidal to 165	South, mainland and islands	mud, sand, estuaries	mud, sand, estuaries	smooth chione subject to habitat loss due to harbor development	planktonic	unknown	low

Species	Primary depth range (ft.)	Primary geographic range within state	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential dispersal]	Potential for adult dispersal
Clam, gaper (several species)	Intertidal to 150	All regions	sand, sand/mud, estuaries	sand, sand/mud, estuaries	may live to 17 years	planktonic	unknown	low
Clam, geoduck	0-360	All regions	sand/mud, estuaries	sand/mud, estuaries	individuals may exceed 10 pounds	planktonic	2 weeks	low
Clam, littleneck (several species)	Intertidal	All regions, including islands	cobble beds	cobble beds	prized food item	planktonic	unknown	low
Clam, Manila	Intertidal	All regions	sand/mud, estuaries	sand/mud, estuaries	introduced from Japan; important recreational species	planktonic	3 weeks	low
Clam, Pismo	Intertidal to 80	southern and central California	exposed sand	exposed sand	primary prey item of California sea otters	planktonic	pelagic phase 2-3 days	low
Clam, razor	Intertidal and shallow subtidal	northern and central California	exposed sand	exposed sand	individuals can bury themselves in 7 seconds	planktonic	8 weeks	low
Clam, softshell	Intertidal	northern and central California	mud	mud	may have been introduced with eastern oyster	planktonic	unknown	low
Clam, Washington (several species)	Intertidal to 100	All regions	sand/mud, estuaries	sand/mud, estuaries	known to concentrate paralytic shellfish poisoning toxin	planktonic	4 weeks	Low
Cockles	Intertidal to 660	All regions, including islands	sand, sand/mud, mud, estuaries	sand, sand/mud, mud, estuaries	one species may live to 16 years	planktonic	unknown	Low
Crab, box	0-1800	All regions, including islands	rocky reef, submarine canyons	rocky reef, submarine canyons	unknown	planktonic	unknown	unknown
Crab, brown rock	0-300	All regions, including islands	rocky reefs, kelp beds,	rocky reefs, kelp beds,	rock crabs may live 5-6 years	planktonic	3-4 months	moderate
Crab, Dungeness	0-300	northern and central California	sand, sand-mud, estuaries	sand, sand-mud	larvae may be trans-ported more than 50 miles offshore	planktonic	105-125 days	moderate

Species	Primary depth range (ft.)	Primary geographic range within state	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential dispersal]	Potential for adult dispersal
Crab, red rock	0-750	All regions, including islands	rocky reefs, submarine canyons	rocky reefs, submarine canyons	may co-occur with spot prawns	planktonic	3-4 months	moderate
Crab, sand	Intertidal	All regions, including islands	intertidal, shallow subtidal sand	intertidal, shallow subtidal sand	larvae may occur with Dungeness crab larvae	planktonic	unknown	low
Crab, spider (sheep crab)	20-410	southern California	rocky reefs, kelp beds	rocky reefs, kelp beds	cease molting after reaching maturity	planktonic	unknown	moderate-high
Crab, yellow rock	0-300	southern California	sand, soft bottom	sand, soft bottom	egg-bearing females may congregate in rock-sand interface habitat	planktonic	3-4 months	moderate
Cucumber, sea (several species)	0-300	All regions, including islands	rocky reefs, sand/mud	rocky reefs, sand/mud	do not form spawning aggregations	planktonic	51-91 days	low
Limpets	Intertidal to 100	All regions, including islands	rocky reefs	rocky reefs	some species may live 15 years	planktonic	less than 1 week	Low
Lobster, California	0- 240	South, mainland and islands	surf grass beds	rocky reef, kelp beds, eel grass beds	egg-bearing females generally found in shallow water	planktonic	5-9 months	moderate-high
Mussels (several species)	Intertidal to 130	All regions, including islands	rocky reefs, pilings	rocky reefs, pilings	bioaccumulator of toxins.	planktonic	1 month	Low
Octopus (several species)	Intertidal to 660	All regions, including islands	rocky reefs, kelp beds, soft bottom	rocky reefs, kelp beds, soft bottom	eggs are attached to substrate and brooded by females	planktonic	1 month or less	Low
Prawn, ridgeback	145-525	South; mainland and islands	sand, shell, green mud	sand, shell, green mud	positive response to El Niño conditions	planktonic	unknown	low
Prawn, spot	150-1,600	All regions, including islands	shallower mud, mud-sand, sand/rock. rocky reef, submarine canyons	mud, mud-sand, sand/rock. rocky reef, submarine canyons	change sex from male to female during year 4	planktonic	unknown	moderate

Species	Primary depth range (ft.)	Primary geographic range within state	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential dispersal]	Potential for adult dispersal
Scallop, rock	Intertidal to 100	All regions, including islands	rocky reefs, pier pilings, rock jetties	rocky reefs, pier pilings, rock jetties	intolerant of salinity less than 25 ppt	planktonic	5 weeks	Low
Sea hare (two species)	0-60	southern and central California	hard and soft bottom, kelp beds	hard and soft bottom, kelp beds	large nerve ganglia make them useful for research	planktonic	4-5 weeks	Low
Sea stars (many species)	Intertidal to deepest canyons	All regions, including islands	rocky reefs, hard bottom, sand	rocky reefs, hard bottom, sand	some species adapted to exposure at low tides	planktonic	unknown	Low
Shrimp, bay (several species)	0-575	All regions	soft bottom, estuaries	soft bottom, estuaries	major prey item for fishes	planktonic	30-40 days	low-moderate
Shrimp, coonstripe	60-600	northern and central California	sand, gravel, rocky reef, submarine canyon	sand, gravel, rocky reef, submarine canyon	change sex from male to female during year 1 or 2	planktonic	unknown	moderate
Shrimp, ghost and mud shrimp (several species)	Intertidal	All regions	sand, sand/mud, sand/ gravel	sand, sand/mud, sand/gravel	form permanent burrows or impermanent tunnels	planktonic	unknown	low
Shrimp, ocean	150-1200	northern and central California: Oregon border to Pt. Arguello	green mud, mud-sand	green mud, mud-sand	change sex from male to female during year 2	planktonic	2.5 to 3 months	moderate
Snail, moon	Intertidal to 500	All regions, including islands	soft bottom	soft bottom	has aquiferous system of spongy sinuses in foot	planktonic	2 weeks	low
Snail, top (several species)	0-100	southern California	rocky reefs, kelp beds, including canopy	rocky reefs, kelp beds, including canopy	common in upper kelp canopy	planktonic	unknown	low
Snail, turban (several species)	Intertidal to 250	All regions, including islands	shallower rocky reefs, kelp beds, including canopy	rocky reefs, kelp beds, including canopy	feeds primarily on kelp and coralline algae	planktonic	unknown	low

Species	Primary depth range (ft.)	Primary geographic range within state	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential dispersal]	Potential for adult dispersal
Squid, market	0 to at least 600	southern and central California	over soft bottom	over soft bottom	short-lived; average squid in commercial fishery is ½ year old.	planktonic	unknown	high
Urchin, purple	0-300	All regions, including islands	rocky reefs, kelp beds, under canopy of adults	rocky reefs, kelp beds	require high densities for successful spawning	planktonic	6-8 weeks	low
Urchin, red	Intertidal to 400	All regions, including islands	rocky reefs, kelp beds, under canopy of adults	rocky reefs, kelp beds	require high densities for successful spawning	planktonic	6-8 weeks	low
Urchin, white	0-990	South, including islands	sand, eel grass beds	sand, eel grass beds	extremely efficient grazers on smaller algaes	planktonic	30-60 days	low
Whelk, Kellet's	0-230	South, including islands	rocky reefs, kelp beds, gravel, sand	rocky reefs, kelp beds, gravel, sand	spawning aggregations of up to 20 individuals occur in spring	planktonic	unknown	low
Worms (polychaetes)	Intertidal to deepest canyons	All	rocky reefs in mussel beds, cobble beds, soft bottom	rocky reefs in mussel beds, cobble beds, soft bottom	several species have toothed proboscis	planktonic	variable	low
Algae and Plants								
Gelidium sp. (many species)	Intertidal, to 100	All regions, including islands	rocky reefs	rocky reefs	may forms mats of algal turf	not applicable	not applicable	none
Gracilaria sp. (many species)	Intertidal to 50	All regions, including islands	soft bottoms	soft bottoms	used as spawning substrate by herring in SF Bay	not applicable	not applicable	none
Kelp, bull	10-70	northern and central California	on rock or cobble substrate	on rock or cobble substrate	found where water temp is < than 60 F	not applicable	not applicable	none
Kelp, giant	20-120	southern and central California	on sand and rock substrate	on sand and rock substrate	fronds may grow up to 24 inches per day	not applicable	not applicable	none
Porphyra sp. (many species)	Intertidal to 100	All regions, including islands	rocky reefs	rocky reefs	may be common in high-energy surf zones	not applicable	not applicable	none

Species	Primary depth range (ft.)	Primary geographic range within state	Habitat preference juveniles	Habitat preference adults	Unique or significant life-history characteristics	Larval type	Larval duration [potential dispersal]	Potential for adult dispersal
Sea palm	Intertidal	northern and central California	exposed rocky reefs	exposed rocky reefs	individuals can regenerate blades but not stipe.	not applicable	not applicable	none
Zostera marina (eel grass)	5-20	All regions including islands	shallow sheltered mud and sand	shallow sheltered mud and sand	flowering plant	not applicable	not applicable	none

Appendix H. Summary of Recent and Ongoing Processes Related to the Marine Life Protection Act Initiative
(Revised November 2004)

Several state, federal, and local agencies have either jurisdictional authority for or a vested interest in establishing marine protected areas (MPAs) in California. This document describes these various entities and their roles and provides a summary review of recent or ongoing processes that are separate from, but related to, the Marine Life Protection Act Initiative. Note that these summaries have not been reviewed by the organizations whose activities are described.

List of Ongoing and Recent MPA Processes

These state, federal and local processes are described in more detail in section III.

State Processes
- Channel Islands MPAs (Department of Fish and Game) - State waters monitoring of an MPA network implemented in 2003

Federal Processes
- Presidential Executive Order on MPAs (National MPA Center) - Charges federal agencies with the task of establishing a national network of MPAs
- Channel Islands National Marine Sanctuary - Federal waters implementation of the joint state/federal MPAs recommendation
- Monterey Bay National Marine Sanctuary – Working group is reviewing the need for MPAs in the sanctuary
- Gulf of the Farallones National Marine Sanctuary - Working group is reviewing the need for additional protection in coastal estuaries
- California Coastal National Monument (Bureau of Land Management) - Established by presidential proclamation to protect important biological and geological values
- Point Reyes National Seashore (National Park Service) - Evaluating a potential new MPA around Bird Rock

Local Processes
- Fitzgerald State Marine Park (San Mateo County Department of Parks and Recreation) - Interested in changing the park designation to a state marine reserve.
- Ed Ricketts Park, Monterey (City of Monterey) - The city has established a park which prohibits the use of spearguns or pole spears without the concurrence of the Department of Fish and Game or Fish and Game Commission.
- Pacific Grove State Marine Conservation Area (City of Pacific Grove) - The city has established restrictions on the take of marine invertebrates without the concurrence of the Department of Fish and Game or Fish and Game Commission.
- Diablo Canyon Nuclear Power Plant (Regional Water Quality Control Board) - Pacific Gas & Electric suggested that the creation of new MPAs could serve as partial mitigation for the impacts associated with the power plant, though the Department of Fish and Game has not determined that MPAs are appropriate or complete mitigation for these impacts.

State, Federal and Local Agencies with MPA Interests and Their Authority to Establish MPAs

State Agencies

California Department of Fish and Game (Department)
The California Department of Fish and Game has management authority over living marine resources within state waters (generally between 0 and 3 nautical miles from shore or around offshore islands, with a few exceptions such as Monterey Bay) as well as authority to regulate fisheries that deliver catch to California ports. Thus, Department has some authority beyond state waters and often enforces regulations outside the 3 nautical mile line. Department enforces laws established by the California Legislature and regulations established by the Fish and Game Commission (Commission). The Commission has authority to establish, modify, or delete state marine reserves and state marine conservation areas. The Commission may establish fishing regulations for state marine parks, but must have the concurrence of the Park and Recreation Commission (see below) to establish, modify or delete a state marine park. Other Commission fishing regulations may also affect or be affected by MPA designations.

California Department of Parks and Recreation (State Parks)
Responsible for almost one-third of California's scenic coastline, the Department of Parks and Recreation manages coastal wetlands, estuaries, beaches, and dune systems within State Park units. Through State Water Bottom Leases, State Parks has management authority over several underwater areas, though does not have authority to restrict the take of living marine resources. State Parks enforces regulations established by the Park and Recreation Commission. The Park and Recreation Commission has authority to establish, modify or delete state marine reserves, state marine parks, and state marine conservation areas, but must have the concurrence of the Fish and Game Commission on any proposed restrictions to the extraction of living marine resources.

State Water Resources Control Board (SWRCB)
The State Water Resources Control Board has regulatory authority over discharges into marine waters from point and nonpoint sources, as well as other water-quality related aspects. SWRCB has authority to create state water quality protection areas and areas of special biological significance, which are classifications of marine managed areas (MMAs) and are not MPAs. Regional water quality control boards are the units within the SWRCB that oversee local management issues throughout the state.

Federal Agencies

National Oceanic and Atmospheric Administration (NOAA)
The National Oceanic and Atmospheric Administration conducts research and gathers data about the global oceans, atmosphere, space, and sun. A U.S. Department of Commerce agency, NOAA provides these services through five major organizations, three of which have direct interest in MPA issues: the National MPA Center, the National Ocean Service (under which the National Marine Sanctuary Program is found) and NOAA Fisheries.

National MPA Center - The Executive Order on MPAs (see below) established the National MPA Center to oversee national efforts to create a national system of MPAs and to assist government agencies in participating in this effort. The National MPA Center also supports the MPA Federal Advisory Committee established under executive order as well as a Science Institute which provides scientific information and policy analysis to support the planning, management and evaluation of the nation's MPAs.

National Marine Sanctuaries - The sanctuaries' primary objectives are resource protection, research, education, and public use. Sanctuaries have broad authority for establishing regulations under the Sanctuaries Act to protect sanctuary resources. The designation documents of the four California sanctuaries (Channel Islands, Monterey, Gulf of the Farallones and Cordell Bank) do not currently allow for the imposition of fishing regulations. They may, however, amend their designation through a management plan review process. For changes to designation documents that may impact state waters, the governor has the power to overrule such changes.

NOAA Fisheries (the National Marine Fisheries Service or NMFS) - NMFS has regulatory authority for marine finfishes, invertebrates, and marine mammals other than sea otters in waters 3-200 nautical miles from shore. Among other laws, NMFS derives its authority from the Magnuson-Stevens Fisheries Conservation Act of 1976. Under the Magnuson-Stevens Act, NMFS manages any fishery that is the subject of a fishery management plan developed by regional fishery management councils (see below) as well as some non-FMP species.

Pacific Fishery Management Council (PFMC) - PFMC is one of eight regional fishery management organizations established by the Magnuson-Stevens Act. The councils develop fishery management plans for fisheries within 200 miles of shore; these plans must be approved by the Secretary of Commerce and are implemented by NMFS. The PFMC has management authority for approximately 80 species of finfishes, primarily those associated with the bottom (groundfish), but also highly migratory species and others.

United States Fish and Wildlife Service (USFWS) - USFWS has regulatory authority for managing seabirds and sea otters.

Unlike the California MPA program, the federal government does not have a standardized system for classifying MPAs in federal waters. Also, it is unclear whether the National Marine Sanctuaries Act authority or Magnuson-Stevens Act authority would be used in the various federal processes described below. Under the Sanctuaries Act, if a sanctuary designation document lists fishing as an activity that may be regulated and it is determined that fishing must be regulated in order to meet the sanctuary's goals, the sanctuary must provide the appropriate regional fishery management council with the opportunity to prepare draft fishing regulations. If a regional council does not do so, or if the sanctuary program determines that the draft regulations are insufficient, the sanctuary program itself may prepare draft fishing regulations. These regulations may be adopted under the National Marine Sanctuaries Act or under the Magnuson-Stevens Act. Under the National Marine Sanctuaries Act, fishing and other regulations may be adopted for state waters only with the concurrence of the appropriate state agency, such as the Fish and Game Commission.

National Park Service (NPS)
NPS has regulatory authority for certain activities within its jurisdiction, but cannot regulate the harvest of living marine resources.

Bureau of Land Management (BLM)
BLM has management responsibility for the recently-established California Coastal National Monument, an aggregation of thousands of small rocks and pinnacles above mean high tide in state and federal waters off California. BLM works cooperatively with the appropriate state and federal agencies with authority to regulate the extraction of living marine resources, including Department, for marine resource issues.

Local Agencies

Many county, city and local organizations have taken interest in MPA issues for their jurisdictions. None has regulatory or management authority over living marine resources, nor the statutory authority to establish MPAs. Even so, several existing county and city areas were established with the intent of protecting marine resources and in some cases function as MPAs.

One example is the City of Avalon Casino Point Underwater Park at Catalina Island. This area was established in 1964 with a city ordinance that prohibits the use of spearguns. There are no state regulations regarding take in the area, and by the letter of the law, one could take lobster or even fish from a boat or the shore. The public, however, generally believes this is a no-take area and it is enforced as such.

The following local agencies are discussed in greater detail in section III:

San Mateo County Parks and Recreation Division - San Mateo County has management responsibility over the county park adjacent to Fitzgerald Marine Reserve and co-management responsibility with Department over Fitzgerald State Marine Park. San Mateo County has no regulatory authority over harvest of marine resources, but can restrict activities or access from shore

City of Monterey - Monterey has no regulatory authority over the harvest of marine resources adjacent to the city but has taken action to attempt to prohibit certain activities in an area along Cannery Row.

City of Pacific Grove - Pacific Grove has no regulatory authority over the harvest of marine resources adjacent to the city but has taken action to attempt to prohibit certain activities in an area along the city's shoreline.

Recent and Ongoing MPA Processes

State Processes

Channel Islands National Marine Sanctuary - State Waters
In April, 1998, a group of concerned recreational anglers, with support from the Channel Islands National Park, submitted a proposal to the Fish and Game Commission to close 20% of the waters within 1 mile of the northern Channel Islands to all fishing. Following nearly a year of commission meetings on the topic, Department and the Channel Islands National Marine Sanctuary (CINMS, which includes waters six miles around the northern Channel Islands - Anacapa, Santa Cruz, Santa Rosa, and San Miguel - and Santa Barbara Island) offered to establish a stakeholder process to discuss the issue at a local level.

The Fish and Game Commission accepted the offer and Department and CINMS established a marine reserves working group (MRWG) composed of representatives from diverse interest groups. The MRWG considered alternative networks of marine reserves (no-take MPAs) in both state and federal waters. The MRWG met monthly between July 1999 and June 2001 before forwarding their work to the Sanctuary Advisory Council (SAC). The MRWG achieved consensus on a problem statement, goals and objectives, and implementation recommendations for MPAs. Though the MRWG did not reach consensus on a single network proposal, they did provide more than 40 fully analyzed alternatives and areas of agreement and disagreement to the SAC. The SAC asked Department and CINMS to use the information to create a preferred alternative, which was presented to the commission in August 2001.

On October 23, 2002 the Fish and Game Commission voted to adopt the preferred alternative for MPAs within the state waters of the CINMS. These areas represent 19% of state waters within the sanctuary; they include 95 square nautical miles in 10 no-take state marine reserves and 7 square nautical miles in 2 limited-take state marine conservation areas. The new MPAs became effective on April 1, 2003.

The original MPA network proposed by Department and CINMS included additional area offshore of, and contiguous with, the new MPAs. Most of this area was in federal waters and all was within the sanctuary. A separate process is now underway to consider establishing MPAs in the federal waters.

The Channel Islands proposal came more than a year before the MLPA and was pursued independently of the MLPA process. While the stated goals of the two processes were very similar, the Channel Islands process was focused on a specific area. Furthermore, at Channel Islands only the state marine reserve classification, in which all extractive activity is prohibited, was formally considered for MPAs. However, the designation of state marine conservation areas was discussed throughout the process and included in the final recommendation.

A monitoring program is now in place within and adjacent to the new Channel Islands MPAs. The program is a cooperative venture among state and federal agencies, universities and other research institutions, and fishermen. The program builds on existing long-term monitoring programs and is obtaining data, intertidally and in shallow and deep water, at all of the MPAs in order to determine changes in species diversity, relative abundance, and size

distribution, with which to evaluate the effectiveness of the MPAs in meeting their established goals.

Federal Processes

Presidential Executive Order 13158
In May 2000, President Clinton signed Executive Order 13158 regarding marine protected areas. This order was reaffirmed in June 2001 by President George W. Bush. The executive order charges federal agencies, consistent with domestic and international law, to:

- Strengthen the management, protection, and conservation of existing MPAs and establish new or expanded MPAs;
- Develop a scientifically based, comprehensive national system of MPAs representing diverse U.S. marine ecosystems, and the nation's natural and cultural resources;
- Avoid causing harm to MPAs through federally conducted, approved, or funded activities; and
- Consult with states, territories, tribes, regional fishery management councils, and other entities as appropriate to facilitate coordination of federal, state, territorial, and tribal actions to establish and manage MPAs.

The National MPA Center is working closely with Department to assist in the implementation of the MLPA wherever possible. They have offered technical expertise, in-kind services and financial assistance to the MLPA Initiative.

Channel Islands National Marine Sanctuary - Federal Waters
As noted above, most of the alternative MPAs developed by MRWG included federal as well as state waters. While the Fish and Game Commission had the authority to designate MPAs in state waters within the sanctuary, designation of MPAs outside state waters is a federal responsibility and requires the completion of a separate process.

Upon the commission's establishment of the MPAs in state waters, CINMS initiated the federal process to consider establishing a network of MPAs to complement the MPAs in state waters. They are working in conjunction with the Pacific Fishery Management Council (PFMC). As described previously, PFMC is given the opportunity to draft sanctuary fishing regulations to meet sanctuary goals and objectives. The focus of the current process is the preparation of a draft environmental impact statement (DEIS) which examines a range of management and regulatory alternatives associated with consideration of MPAs within the Sanctuary.

The DEIS is expected to be completed and released for comment in the spring of 2005. PFMC will comment on the DEIS for the Channel Islands and has already provided input on a preliminary range of options. PFMC has established a marine reserves subcommittee to review the CINMS DEIS and provide recommendations to the council members. The subcommittee has been meeting regularly for several years to discuss the issue of MPAs. This federal phase of the CINMS MPA process may take more than two years to complete.

Monterey Bay National Marine Sanctuary

The Monterey Bay National Marine Sanctuary (MBNMS) extends from Marin County south to Cambria in San Luis Obispo County and is the largest sanctuary on the West Coast. In 2001 MBNMS staff began a public process to review and update the sanctuary's 1992 management plan. Two years later, after extensive public outreach and input, the MBNMS produced a series of proposed action plans in its joint management plan review document, which have been approved by the Sanctuary Advisory Council (SAC) and are now being reviewed by the National Marine Sanctuary Program headquarters.

One of these action plans is titled "Special Marine Protected Areas." A formal working group with a diverse array of stakeholder representation was formed during the management plan review process. Due to the considerable interest in, and sensitive nature of, the topic, this group continues to meet three to four times per year under the guidance of the MBNMS superintendent. The Department of Fish and Game has a representative on the working group.

The stated goal of the Special MPA Action Plan is as follows:

> "To determine the role, if any, of additional marine protected areas in maintaining the integrity of biological communities in the Monterrey Bay National Marine Sanctuary, and to protect, where appropriate, restore and enhance natural habitats, populations and ecological processes. If additional MPAs are to be created, provide for the design of MPAs that are compatible with the continuation of long-term sustainable fishing in the Sanctuary, as fishing is a key cultural and economic component of the region.
>
> The action plan will outline the framework for coordinating with and providing input to appropriate state and federal agencies on the need for, purpose, design and implementation of MPAs within the MBNMS region, whether initiated or coordinated by the sanctuary or other agencies. A multi-stakeholder workgroup will work together to implement the components of the action plan."

Recently the MBNMS SAC recommended that this action plan receive high priority by sanctuary staff. While there is no target date for the completion of the working group's activities, much useful information has already been generated, including a draft list of conservation goals and objectives related to MPAs and information on the socioeconomic value of different portions of Sanctuary waters.

The sanctuary working group efforts are being coordinated with the MLPA Initiative process, which are related in two important ways. Part or all of the state waters within the sanctuary may be within the MLPA Initiative central coast project region. Many of the members of the sanctuary MPA working group were part of the original regional working group in the Monterey-Santa Cruz area for the previous MLPA process.

Gulf of the Farallones National Marine Sanctuary

Staff at the Gulf of the Farallones National Marine Sanctuary recently formed a working group to discuss additional protection for estuarine areas called esteros, which border the sanctuary. While the additional protection focuses on water quality, which is not a stated goal of the MLPA process, one of the esteros is already a state-designated MPA. Currently, the working group is not considering MPAs within state waters outside the esteros.

California Coastal National Monument
Designated by presidential proclamation on January 11, 2000, the California Coastal National Monument (Monument) runs the entire length of the California coast and extends 12 nautical miles from the shoreline. The Monument encompasses thousands of unincorporated islands, rocks, exposed reefs, and pinnacles above mean high tide. Since 1983, the BLM has managed these resources in cooperation with Department; a memorandum of understanding formalizes this agreement and includes the Department of Parks and Recreation. The primary purpose of the Monument is to protect important biological and geological values. The islands, rocks, reefs, and pinnacles provide forage and breeding grounds for significant populations of birds and sea mammals.

In September 2004 the Bureau of Land Management (BLM) released for public review and comments a draft resource management plan (RMP)/draft environmental impact statement (EIS) for the Monument. The draft RMP/draft EIS focuses on protection of the scenic and geologic formations of the monument and the habitat they provide for seabirds, marine mammals, and vegetation. In the document, BLM states, “many of the regulations needed to manage the resources are already in place; therefore, this plan is not proposing any new regulations.” However, the preferred alternative describes a process by which seasonal restrictions on fishing and other activities would be imposed around rocks and islands to protect sensitive populations of marine birds and mammals. BLM would need to work with the Fish and Game Commission to establish regulations within state waters, which are under state jurisdiction.

BLM is aware of the MLPA Initiative and has been encouraged to coordinate any efforts related to increased protection for marine birds and mammals with that effort.

National Park Service
The National Park Service (NPS) manages Point Reyes National Seashore, a federally-designated marine managed area (MMA) along the Marin County coast. Park Service staff have stated their intention to create an MPA around Bird Rock, a popular recreational fishing site in close proximity to a public launch ramp in Tomales Bay. NPS has chosen not to take their proposal to the Fish and Game Commission separately, and is aware of the MLPA Initiative. Bird Rock has existing state MMA status as an area of special biological significance (ASBS or water quality protection area).

Local and Regional Efforts within the Central Coast

San Mateo County Parks and Recreation Division
The San Mateo County Parks and Recreation Division (PRD) provides on-site management and enforcement for the Fitzgerald State Marine Park (formerly called Fitzgerald Marine Reserve), presently the only MPA in ocean waters between San Francisco and Monterey. PRD staff recently produced a final environmental impact report for the “Fitzgerald Marine Reserve Master Plan”. The master plan includes supporting the reclassification of the park designation to a state marine reserve, which would by definition prohibit all extractive uses. Any increased restrictions on recreational fishing within the MPA are controversial. PRD is aware of the MLPA Initiative but has chosen not to take their proposal to the Fish and Game Commission. The county has no authority to establish an MPA or change the current designation.

City of Monterey
The City of Monterey has taken independent action to establish an underwater park in depths out to 60 feet between the Coast Guard breakwater and Hopkins Marine Station. The city has approved regulations which prohibit the use of spear guns and pole spears to take finfish. The Department of Fish and Game has informed the city that the city has no jurisdiction over the management of marine resources, and the state does not recognize the establishment of the city park. The MLPA process would be the proper forum to consider an increase in the degree of protection for this area.

City of Pacific Grove
As with the City of Monterey, the City of Pacific Grove has taken independent action to protect marine resources. Primarily due to grass roots efforts of a local conservation organization called the Tidepool Coalition, the city passed an ordinance which prevents all extraction of marine invertebrates within the intertidal area of the city limits, including extraction related to scientific collecting. Similar to the situation in Monterey, Department has informed the city that the city has no jurisdiction over the management of marine resources. Present state regulations prohibit the commercial harvest of all marine organisms except squid, sardines, mackerel, anchovies, and herring, and prohibit the recreational harvest of all marine plants, mollusks, and crustaceans out to a depth of 60 feet, in the area now designated as a Pacific Grove State Marine Conservation Area. In response to the city and Tidepool Coalition's concerns, Department instituted a policy prohibiting scientific collecting in the southern half of the MPA, although scientific collecting with a permit is technically allowed throughout the entire area. The Tidepool Coalition objects to this policy, but has yet to take a proposal for increased intertidal protection to the Fish and Game Commission. Through membership on a previous working group, the Tidepool Coalition was actively engaged in the MLPA process. The MLPA process would be the proper forum to consider an increase in the degree of protection for this area.

San Luis Obispo County
Department has been involved in reviewing and commenting on plans to mitigate for impacts to receiving waters by the operation of the Diablo Canyon Nuclear Power Plant by Pacific Gas and Electric Company (PG&E) since the conception and siting stage for the power plant. The most recent discussions began in the mid-1990s as a result of allegations that PG&E, the power plant owner and operator, were violating the terms of the existing National Pollution Discharge Elimination System permit (a discharge permit).

In response, PG&E suggested that creating new MPAs could serve as partial mitigation for the impacts associated with the operation of Diablo Canyon. Shortly after September 2001, a new, de facto no-take MPA was established within a one-mile radius of the Diablo Canyon power plant for national security reasons (no access is permitted). The Department does not believe that MPAs are appropriate or complete mitigation for impacts associated with power plants. The Department has drawn attention to the MLPA process and indicated that some mitigation funds could potentially be used for monitoring or management of existing areas.

Appendix I. Description of Existing State Marine Protected Areas

For descriptions of existing MPAs, please consult
http://www.dfg.ca.gov/mrd/mlpa/descriptions.html.

The Marine Life Protection Act (MLPA) requires an analysis of the state's current MPAs, based on the preferred siting alternative for a proposed statewide network of MPAs. The analysis shall include "recommendations as to whether any specific MPAs should be consolidated, expanded, abolished, reclassified, or managed differently so that, taken as a group, the MPAs best achieve the goals" of the MLPA and conform to MLPA guidelines.

The Department of Fish and Game has assembled basic descriptions and analyses of existing MPAs at http://www.dfg.ca.gov/mrd/mlpa/descriptions.html. Since a preferred siting alternative has not yet been developed, these analyses of existing MPAs are preliminary and are intended as a starting point for the more detailed analyses called for in the MLPA. Each characterization contains a general description of the habitats and depth range, a summary of existing regulations, the primary objectives for establishing the MPA, a summary of relevant research and monitoring within the MPA, and relevant scientific literature citations.

Also included is a preliminary assessment of the overall effectiveness of each MPA. This preliminary assessment is based on a variety of criteria, including baseline monitoring studies, comparisons of factors such as species diversity and density, individual animal sizes, the ability to provide research, educational, and non-extractive recreational opportunities, and the ability of the regulations to be enforced. One problem in evaluating MPA effectiveness for many existing MPAs is the lack of clearly defined goals when they were established. Many of the estuarine MPAs do not have a preliminary assessment of overall effectiveness due to a current lack of available information.

A subsequent, more detailed, evaluation of each MPA will take place as the MLPA Initiative process focuses on individual regions and begins to develop and evaluate options for networks of MPAs for each region. Because one of the requirements of the MLPA is to "encompass a representative variety of marine habitat types and communities, across a range of depths and environmental communities", in the form of marine life refuges (defined as no-take areas in the act and now known as state marine reserves), the subsequent evaluations must consider the need for changing existing MPAs or adding new ones in order to meet this and other requirements of the MLPA.

The literature cited in these preliminary evaluations includes those studies found as of December 2004, and is intended to be an initial review. The literature citations are organized into four categories and listed by reference number from the literature cited section of this report:

1. Published references which relate to the effectiveness of the particular MPA,
2. Published references which relate to the use of the particular MPA as a site for research,
3. Unpublished references which relate to the effectiveness of the particular MPA, and

4. Unpublished references which relate to the use of the particular MPA as a site for research.

If no citations are listed in the description of an MPA, none could be found for that MPA. New references may be added to this report as they become available. At the end of this report is a general list of published and unpublished references that relate to MPAs, including theoretical studies of MPA design where the work was not specifically conducted within or adjacent to MPAs off California. More references are available on the Department of Fish and Game's website at http://www.dfg.ca.gov/mrd/mlpa.

The MPAs evaluated at the MLPA web site are organized geographically from north to south by county, as follows:

Humboldt County
- Punta Gorda State Marine Reserve

Mendocino County
- MacKerricher State Marine Conservation Area
- Point Cabrillo State Marine Conservation Area
- Russian Gulch State Marine Conservation Area
- Van Damme State Marine Conservation Area
- Manchester and Arena Rock State Marine Conservation Area

Sonoma County
- Del Mar Landing State Marine Park
- Salt Point State Marine Conservation Area
- Gerstle Cove State Marine Conservation Area
- Fort Ross State Marine Conservation Area
- Sonoma Coast State Marine Conservation Area
- Bodega State Marine Reserve

Napa County
- Fagan Marsh State Marine Park

Marin County
- Tomales Bay State Marine Park
- Point Reyes Headlands State Marine Conservation Area
- Estero de Limantour State Marine Conservation Area
- Duxbury Reef State Marine Conservation Area
- Corte Madera Marsh State Marine Park
- Marin Islands State Marine Park

San Francisco County
- Farallon Islands State Marine Conservation Area

Solano County
- Peytonia Slough State Marine Park

Alameda County
- Albany Mudflats State Marine Park
- Robert W. Crown State Marine Conservation Area

San Mateo County
- Redwood Shores State Marine Park
- Bair Island State Marine Park
- James V. Fitzgerald State Marine Park

Monterey County
- Elkhorn Slough State Marine Reserve
- Hopkins State Marine Reserve
- Pacific Grove State Marine Conservation Area
- Carmel Bay State Marine Conservation Area
- Point Lobos State Marine Reserve
- Julia Pfeiffer Burns State Marine Conservation Area
- Big Creek State Marine Reserve

San Luis Obispo County
- Atascadero Beach State Marine Conservation Area
- Morro Beach State Marine Conservation Area
- Pismo State Marine Conservation Area
- Pismo-Oceano Beach State Marine Conservation Area

Santa Barbara County
- Vandenberg State Marine Reserve
- Richardson Rock State Marine Reserve (San Miguel Island)
- Judith Rock State Marine Reserve (San Miguel Island)
- Harris Point State Marine Reserve (San Miguel Island)
- South Point State Marine Reserve (Santa Rosa Island)
- Carrington Point State Marine Reserve (Santa Rosa Island)
- Skunk Point State Marine Reserve (Santa Rosa Island)
- Painted Cave State Marine Conservation Area (Santa Cruz Island)
- Gull Island State Marine Reserve (Santa Cruz Island)
- Scorpion State Marine Reserve (Santa Cruz Island)
- Refugio State Marine Conservation Area
- Goleta Slough State Marine Park
- Santa Barbara Island State Marine Reserve

Ventura County
- Anacapa State Marine Reserve
- Anacapa State Marine Conservation Area
- Big Sycamore Canyon State Marine Reserve

Los Angeles County
- Abalone Cove State Marine Park
- Point Fermin State Marine Park
- Catalina Marine Science Center State Marine Reserve

- Farnsworth Bank State Marine Conservation Area
- Lover's Cove State Marine Conservation Area

Orange County

- Bolsa Chica State Marine Park
- Upper Newport Bay State Marine Park
- Robert E. Badham State Marine Park
- Crystal Cove State Marine Conservation Area
- Irvine Coast State Marine Park
- Laguna Beach State Marine Park
- Heisler Park State Marine Reserve
- South Laguna Beach State Marine Park
- Niguel State Marine Park
- Dana Point State Marine Park
- Doheny State Marine Park
- Doheny State Marine Conservation Area

San Diego County

- Buena Vista Lagoon State Marine Park
- Agua Hedionda Lagoon State Marine Reserve
- Batiquitos Lagoon State Marine Park
- Encinitas State Marine Conservation Area
- Cardiff and San Elijo State Marine Conservation Area
- San Elijo Lagoon State Marine Park
- San Dieguito Lagoon State Marine Park
- San Diego-Scripps State Marine Conservation Area
- La Jolla State Marine Conservation Area
- Mia J. Tegner State Marine Conservation Area

Appendix J. Glossary

The MLPA includes the definition of several key terms. These are as follows:

The following terms are defined in Fish and Game Code Section 2852:

"(a) "Adaptive management," with regard to marine protected areas, means a management policy that seeks to improve management of biological resources, particularly in areas of scientific uncertainty, by viewing program actions as tools for learning. Actions shall be designed so that, even if they fail, they will provide useful information for future actions, and monitoring and evaluation shall be emphasized so that the interaction of different elements within marine systems may be better understood."

"(b) "Biogeographical regions" refers to the following oceanic or near shore areas, seaward from the high tide line or the mouth of coastal rivers, with distinctive biological characteristics, unless the master plan team establishes an alternative set of boundaries (emphasis added):

(1) The area extending south from Point Conception.

(2) The area between Point Conception and Point Arena.

(3) The area extending north from Point Arena."

"(c) "Marine protected area" (MPA) means a named, discrete geographic marine or estuarine area seaward of the high tide line or the mouth of a coastal river, including any area of intertidal or subtidal terrain, together with its overlying water and associated flora and fauna that has been designated by law, administrative action, or voter initiative to protect or conserve marine life and habitat. An MPA includes marine life reserves and other areas that allow for specified commercial and recreational activities, including fishing for certain species but not others, fishing with certain practices but not others, and kelp harvesting, provided that these activities are consistent with the objectives of the area and the goals and guidelines of this chapter. MPAs are primarily intended to protect or conserve marine life and habitat, and are therefore a subset of marine managed areas (MMAs), which are broader groups of named, discrete geographic areas along the coast that protect, conserve, or otherwise manage a variety of resources and uses, including living marine resources, cultural and historical resources, and recreational opportunities."

"(d) "Marine life reserve," for the purposes of this chapter, means a marine protected area in which all extractive activities, including the taking of marine species, and, at the discretion of the commission and within the authority of the commission, other activities that upset the natural ecological functions of the area, are prohibited. While, to the extent feasible, the area shall be open to the public for managed enjoyment and study, the area shall be maintained to the extent practicable in an undisturbed and unpolluted state."

Fish and Game Code Section 2860 (b) further clarifies permissible activities in "marine life reserves":

"Notwithstanding any other provision of this code, the taking of a marine species in a marine life reserve is prohibited for any purpose, including recreational and commercial fishing, except that the commission may authorize the taking of a marine species for scientific purposes, consistent with the purposes of this chapter, under a scientific collecting permit issued by the department ."(emphasis added)

The MLPA uses but does not define other terms. The following working definitions are drawn from a survey of California and federal law and regulation as well as the scientific literature. Where definitions were available from state law, regulation, or management, these were selected. Otherwise, the definitions below are selected from federal law or the scientific literature. The source for each definition is noted.

Abundance: *Natural abundance* is the total number of individuals in a population protected from, or not subjected to, human-induced change (adapted from Department 2004 and Kelleher 1992). R*elative abundance* is an index of fish population numbers used to compare populations from year to year (Department 2002a).

Biodiversity: A component and measure of ecosystem health and function. It is the number and genetic richness of different individuals found within the population of a species, of populations found within a species range, of different species found within a natural community or ecosystem, and of different communities and ecosystems found within a region (Public Resources Code subsection 12220[b]).

Community: Natural community means a distinct, identifiable, and recurring association of plants and animals that are ecological interrelated (FGC subsection 2702[d]).

Ecosystem: The physical and climatic features and all the living and dead organisms in an area that are interrelated in the transfer of energy and material, which together produce and maintain a characteristic type of biological community (Department 2002b).

Ecosystem disturbance: A discrete event, either natural or human induced, that causes a change in the existing condition of an ecological system (Kaufmann 1994).

Ecosystem function: The processes through which the constituent living and nonliving elements of ecosystems change and interact, including biogeochemical processes and succession (Kaufmann 1994).

Ecosystem integrity: The ability of an ecosystem to support and maintain a balanced, harmonious, adaptive biological community that demonstrates species composition, diversity and functional organization comparable to that of natural habitat in the region (FAO 2003).

Ecosystem structure: The spatial arrangement of the living and nonliving elements of an ecosystem (Kaufmann 1994).

Habitat: The living place of an organism or community, characterized by its physical or biotic properties (Allaby 1998).

Intrinsic value: The value that that thing has “in itself,” or “for its own sake,” or “as such,” or “in its own right” (Zimmerman 2004).

Natural diversity: The species richness of a community or area when protected from, or not subjected to, human-induced change (drawn from Allaby 1998 and Kelleher 1992).

Sources for definitions:

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State of California Department of Fish and Game, Marine Region (Department 2002a). 2002. Draft Abalone Recovery and Management Plan.

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Appendix K: Suggested Outline for Regional Management Plans of Marine Protected Areas

A principal vehicle for ensuring that regional MPA network components meet the goals and objectives of the MLPA is the management plan developed during the design of each regional network component. Besides guiding day-to-day management, research, education, enforcement, monitoring, and budgeting, a management plan also distills the reasoning for key elements of, or of specific MPAs within the network component that should be monitored, evaluated, and revised in response to new information and experience.

There follows a suggested outline for elements of regional MPA network component management plans. Much of the material required to complete a management plan for a regional MPA network component will already have been developed in the course of designing, evaluating, and establishing the regional MPA network component, as depicted in the Outline of Information Required for Proposals for Alternative Networks of Marine Protected Areas in Appendix F. This list of elements is suggestive only and the elements included in any specific regional plan should be appropriate to that region.

Suggested Outline of Management Plans for Regional MPA Network Components

I. Summary
   a. Name of the network component
   b. General description of the network component
   c. Objectives of network component
   d. Principal features of management

II. The Setting
   a. Description of region
      i. Legal description of the boundaries of study area
         1. Rationale for boundaries
      ii. Species or groups of species likely to benefit from MPAs [FGC §2856(a)(2)(B)]
         1. Distribution of these species in the region and beyond
         2. Status of these species in the region and beyond
      iii. Representative or unique marine ecosystems in the region [FGC §2853(b)(1)]
         1. Distribution of these ecosystems
         2. Status of these ecosystems
      iv. Distribution of representative and unique habitats in the region generally, and specifically for species likely to benefit.
      v. Distribution of oceanic features that may influence target species, including currents and upwelling zones [FGC §2856(a)(2)(B)]

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vi. Current and anticipated distribution of human uses
    1. Aquatic, including commercial and recreational fishing, scuba diving, etc.
    2. Coastal terrestrial, including recreation, discharges, etc.
vii. Current economic value and use of the area.
viii. Current management of human activities affecting target species, ecosystems, and habitats.
ix. Evaluation of current management of human activities affecting target species, ecosystems, and habitats in relations to the goals and objectives of the MLPA.

III. The Regional Network component
a. Process used to develop the proposal
b. Gap analysis
    i. Description of pre-existing MPAs and other relevant marine managed areas such as state water quality protection areas
    ii. Adequacy of existing management plans and funding
    iii. Target habitats and ecosystems entirely unrepresented
    iv. Target habitats and ecosystems insufficiently protected by pre-existing MPAs
    v. Target habitats and ecosystems insufficiently protected by other management activities to meet the standards of the MLPA,
    vi. Target habitats and ecosystems insufficiently protected by pre-existing MPAs and other management activities, without replicates in the region or with replicates too widely spaced.
    vii. Existing economic activities or factors dependent on the areas involved.
c. Regional goals and objectives for a network component of MPAs
    i. Relation of goals and objectives to the MLPA generally and to resource and economic problems and opportunities in the region specifically
d. General description of the network component and its management
    i. Spacing of MPAs and overall regional level of protection
    ii. Management measures
    iii. Proposed monitoring for evaluating the effectiveness of the site in achieving its goals, including identification of those MPAs that will receive active monitoring
    iv. Proposed monitoring of effects to economic and social factors and activities in coastal communities.
    v. Proposed research programs,
    vi. Proposed education programs,
    vii. Enforcement needs and means of meeting those needs,
    viii. Funding requirements and sources,
    ix. Proposed mechanisms for coordinating existing regulatory and management authority,
    x. Opportunities for cooperative state, federal, and local management,

IV. Design of the network component:
a. How does the network component emphasize:

i. areas where habitat quality does (or potentially can) support diverse and high-density populations,
ii. benthic habitats and non-pelagic species,
iii. hard bottom as opposed to soft bottom
iv. habitats associated with those species that are officially designated as overfished, with threatened or endangered species, and productive habitats such as kelp forests and seagrass beds?

b. How does the network component include:
   i. unique habitats,
   ii. Help to include a variety of habitats,
   iii. a variety of ocean conditions such as upwelling centers, upwelling shadows, bays, estuaries, and exposed and semi-protected coastlines?
c. How does the network component incorporate or expand upon existing MPAs that are considered to be effective?
d. How does the network component include a variety of sizes and types of MPAs that are dispersed in a network component that does the following:
   i. Provide enough space within individual MPAs for the movement of juveniles and adults of many species,
   ii. Achieve beneficial ratios of edge to area,
   iii. Facilitate analysis of the effects of different-sized MPAs,
   iv. Facilitate analysis of the effects of different types of MPAs,
   v. Provide for biological connectivity,
   vi. Enable the use of MPAs as reference sites to evaluate the effects of climate change and other factors on marine ecosystems, without the effects of fishing,
   vii. Enable the use of MPAs as reference sites for fisheries management,
   viii. Minimize the likelihood that catastrophic events will impact all replicate MPAs within a biogeographic region.
   ix. If an MPA is less restrictive than a reserve, how do different uses and restrictions affect achieving the objectives immediately above?
e. How does the network component use simple and easily recognizable boundaries to facilitate identification and enforcement of MPA regulations?
f. Where feasible, how does the network component locate MPAs in areas where there is onsite presence to facilitate enforcement?
g. How does the network component consider non-extractive uses, cultural resources, and existing fisheries and fishing regulations?
h. How does the network component consider proximity to ports, safe anchorage sites, and points of access for all coastal users, to minimize negative impacts on people and coastal economies and increase benefits?
i. How does the network component facilitate monitoring of MPA effectiveness by including well-studied sites, both in MPAs and unprotected areas?

Deleted: a network of sources

Deleted: larval dispersal that are interconnected

V. What are the socio-economic impacts of the proposed network component?
   a. Current uses in region and likely impact of network component on these uses
   b. Future uses in region and likely impact of the network component on these uses
   c. Costs and benefits:
      i. What uses are likely to benefit from the site, and how?
      ii. What uses are likely to suffer from the site, and how?

d. How does the network component consider positive and negative socioeconomic consequences and mitigate for negative impacts where necessary?
e. How will economic and social impacts be measured?

VI. What is the improved marine life reserve component of the preferred network component? (FGC §2857[c])
a. Which species will benefit from the proposed network component and how?
b. How does this network component meet the goals and objectives of the MLPA?

VII. Description of individual MPAs within the preferred network component
a. What are the boundaries of this MPA?
b. What is the total area of the MPA?
c. What is the total shoreline length of the MPA?
d. Does this MPA expand upon an existing MPA?
e. What is the overall goal of this MPA?
f. What are the objectives that serve this goal?
g. What species, populations, habitats, or ecosystem functions are of most concern in this area?
h. What are the chief threats to these features?
i. Which of these threats are amenable to management?
ii. What strategies are being pursued to address these threats?
iii. What additional restrictions or designations (e.g. water quality protection areas) would help address these threats?

VIII. An assessment of the financial, human and physical resources required to establish and manage the MPA including:
a. Staffing
b. Equipment and facilities
c. Training
d. Budget
e. Interpretation and education
f. Monitoring and research
g. Restoration
h. Surveillance
i. Enforcement
j. Contingency/emergency planning
k. Evaluation and review of effectiveness.
l. Potential partnerships

Appendices

Appendix L. Marine Protected Areas Enforcement Plan Framework

Enforcement Plan Challenges

Department of Fish and Game officers face many unique challenges as they enforce the laws relating to fish, wildlife, and habitat within the State and its offshore waters. The State of California includes 159,000 square miles of land area more than 1,100 miles of coastline, and more than 220,000 square miles of combined state and federal ocean waters. The State has more than 30,000 miles of rivers and streams, 4,800 lakes and reservoirs, and 80 major rivers.

California's habitat and wildlife diversity is unequaled by any other state. The state has three of the four North American Desert habitats and scores of high mountain peaks. California is home to more than 1,000 native fish and wildlife species and more than 6,300 native plant species. Of these, approximately 360 species are considered threatened or endangered.

The State's population is 32 million and growing. The Department issues nearly three million licenses and permits each year and commercial fisheries land in excess of 300 million pounds of fish and invertebrates annually. California's marine and freshwater recreational fisheries are a prime draw for both residents and visitors.

Enforcement Plan Options

Effective enforcement of Marine Protected Areas is an essential component to allow these areas to reach their potential in protecting and preserving the marine resources. The enforcement of MPAs can be difficult and time consuming even for highly trained personnel. Natural barriers to enforcement (such as placement of MPAs in remote or hard to access areas) must be considered and accounted for in the enforcement plan.

Remote observation techniques such as aircraft patrols, radar-linked global positioning system, vessel monitoring (transponders) for commercial vessels, and remote cameras are some of the options that could be part of any final plan. These options, however, still require some patrol effort to contact individuals or investigate possible violations.

Education and outreach is an essential part of the enforcement plan. One of the primary objectives in the enforcement action plan is to educate the public about the regulations, allowed fisheries (if any), and the marine environment within the MPAs. This can be accomplished utilizing school programs, workgroups, public involvement forums, printed materials, signs, displays, and public service announcements. Public aquaria in various cities along the California coast provide a unique opportunity to provide outreach and education. The Department will expand partnerships and work with aquaria to provide educational and outreach support.

The first step in developing a final plan will be to evaluate the number and types of access points into the area. The existing level of use and potential for both intentional and unintentional infractions will be considered. The total number of MPAs and their proximity to one another will impact the total number of officers needed for patrol. Finally, the level and type of enforcement will depend on the goals and objectives of the areas.

Option 1 - Existing Enforcement

Option 1 would utilize the existing Department resources (personnel, equipment, and budget) to patrol MPAs. This option would allow minimum enforcement efforts directed at the MPAs, and would not give adequate protection to a new, more comprehensive, network of MPAs. Using existing resources requires that some of the existing workload be eliminated while other tasks would receive minimal time in order to accomplish the additional MPA mandates. This option is neither feasible nor desirable. The legislated goals of the MLPA acknowledge the need for additional Department resources. Given the increased emphasis on MPAs established by the MLPA as well as the act's requirement that MPAs function to the extent possible as a network, the existing Department resources are not adequate for enforcement.

Option 2 - Additional Enforcement

Option 2 would utilize additional Department resources (personnel, equipment, and budget) to patrol the new MPA network. Additional resources would allow for wardens with an emphasis on MPA enforcement to patrol the MPAs and adjacent areas to achieve the desired level of enforcement and protection as required by the MLPA.

Currently, the number and array of MPAs that will be recommended for each region is not known. The level of desired protection for individual areas (e.g., no take or limited take) is also not known. Final decisions on a specific enforcement plan will be incorporated in the management plan recommendations for each regional MPA process. The following discussion includes the framework for that plan and specific considerations for the level of enforcement necessary.

The plan assumes enforcement activities of eight hours a day, five days a week (randomized for coverage on a variety of days and times). This would give basic enforcement and average protection to the MPAs. The more areas included and/or the farther apart areas are, the greater the required enforcement staff to provide adequate protection will be.

To achieve a minimum amount of coverage for a comprehensive set of MPAs, one squad of wardens consisting of four wardens and one lieutenant would be required in each region. While this squad would operate within the overall Department enforcement strategy and patrol both marine and inland areas, their primary objective would be enhanced MPA patrol.

In the Central Coast process, if the MPAs are spread across the entire 190 mile coastline the ability for one squad to thoroughly patrol the area would be reduced and a second squad would be recommended. One squad would cover the area from Pigeon Point to Big Sur, and the second squad would cover the area from Big Sur to Point Conception. These squads would work in conjunction with existing enforcement personnel to provide what might be an acceptable level of enforcement and protection to the MPAs.

Two squads of wardens would put a total of ten new enforcement personnel in the field patrolling the 190-mile stretch covered by this plan. These ten enforcement personnel would be integrated into the enforcement framework already in place in the central coast area and provide additional support for the increased emphasis on MPAs. They would have access to

other DFG personnel to assist as needed, and would have access DFG boats and aircraft to assist as needed with enforcement of MPAs.

Cost of Additional Enforcement Assets

Approximate Enforcement Start up Costs (Budget Year 1)

Coverage	1 Squad (4 Wdns, 1 Lt)	2 Squads (8 Wdns, 2 Lts)
24 hours/7 days a week	$ 4,250,000	$ 8,500,000
16 hours/7 days a week	$ 3,200,000	$ 6,400,000
8 hours/5 days a week	$ 1,500,000	$ 3,000,000

The onetime start up costs include items like vehicles, vessels, radios, peace officer protective equipment, training, and related equipment.

Approximate Enforcement Yearly Costs*

Coverage	1 Squad (4 Wardens, 1 Lt)	2 Squads (8 Wardens, 2 Lts)
24 hours/7 days a week	$2,000,000	$ 4,000,000
16 hours/7 days a week	$ 1,500,000	$ 3,000,000
8 hours/5 days a week	$ 500,000	$ 1,000,000

The yearly costs include salaries and overhead as well as ongoing training.
* At intervals of between 5 and 10 years certain equipment would need to be replaced as well as new wardens hired and trained, increasing these annual costs.

Remote Observation Options and Costs

Several remote observation technologies are available to assist in MPA enforcement and could potentially reduce the need for enforcement by officers in the field. This is particularly true for offshore areas or remote locations. Real time satellite surveillance is available through commercial providers but prohibitively costly at this time. The Department will pursue satellite surveillance options as a potential for future planning. The Department maintains and operates several aircraft capable of MPA patrol. The aircraft are operated on a shared basis with for all Department needs. Additional costs would accrue if MPA-specific aircraft patrols were required, though these costs would be limited to time and fuel. If significant aircraft patrols were needed, potential conflicts with other scheduled may arise.

Vessel Monitoring Systems (VMS) are becoming more prevalent in commercial fisheries, particularly in areas with spatial management in place. The Pacific Fishery Management Council (PFMC) has prepared background information on the potential use of VMS in the Pacific coast groundfish fishery[2] and a summary of this information is provided here. Prices for VMS systems range from $1,800 to $5,800 depending on the particular equipment and needs. According to the PFMC report, start up costs for the limited entry groundfish fishery would be around $2.5 million ($5000 per vessel). These costs would increase if VMS were required on all limited entry and open vessels to approximately $7.5 million (assuming 1,000 open access vessels). Additionally, there are ongoing transmission costs of between $1 and $5 per vessel per day which could significantly increase long-term operational costs. The installation and

[2] Supplemental Enforcement Consultants Report, September, 2002.

transmission costs could, however, be born by the commercial fishermen as a permit requirement.

The majority of the commercial groundfish vessels are larger though their sizes range from 19 to 90 feet. This type of system has not been required previously for recreational fishermen or on smaller commercial vessels. Issues include both the electrical capabilities of smaller vessels and where funding for placement of VMS on recreational vessels would come from. With the large numbers of recreational anglers in California, VMS would likely not be a realistic option for this constituency.

The Department may be able to take advantage of VMS systems required by federal law in some fisheries. In these cases significant offshore coverage could be provided and help reduce offshore patrol needs. This may allow a greater focus on nearshore patrols and of fisheries where VMS is not a requirement.

Timeline for Implementation

If new enforcement staff are approved in the budgetary process, a minimum of one year is required to complete the hiring process and training to bring new wardens into the field. If State hiring lists are not pre-established, this time frame can be increased substantially. The ability to hire and train new staff is also dependent on State budget and hiring constraints. In any given area preliminary enforcement efforts will have to rely on existing enforcement staff with paid overtime or interagency agreements on a reimbursement basis. Final enforcement plans should take this into account and recommendations for implementation dates for MPA proposals should include this consideration.

Evaluation of the proposed network:
How does the network emphasize (much of this is from the MPT):
areas where habitat quality does (or potentially can) support diverse and high-density populations,
benthic habitats and non-pelagic species,
hard bottom as opposed to soft bottom, because fishing activities within state waters have had the greatest impact on fishes associated with hard bottom, and because soft bottom habitat is interspersed within areas containing rocky habitat,
habitats associated with those species that are officially designated as overfished, with threatened or endangered species, and productive habitats such as kelp forests and seagrass beds?
How does the network include:
unique habitats,
a variety of ocean conditions such as upwelling centers, upwelling shadows, bays, estuaries, and exposed and semi-protected coastlines?
How does the network incorporate or expand upon existing MPAs that are considered to be effective?
How does the network include a variety of sizes and types of MPAs that are dispersed in a network that does the following:
Provide enough space within individual MPAs for the movement of juveniles and adults of many species,
Achieve beneficial ratios of edge to area,
Help to include a variety of habitats,
Facilitate analysis of the effects of different-sized MPAs,
Facilitate analysis of the effects of different types of MPAs,
Provide a network of sources for larval dispersal that are interconnected,
Enable the use of MPAs as reference sites to evaluate the effects of climate change and other factors on marine ecosystems, without the effects of fishing,
Enable the use of MPAs as reference sites for fisheries management,
Minimize the likelihood that catastrophic events will impact all replicate MPAs within a biogeographic region.
If an MPA is less restrictive than a reserve, how do different uses and restrictions affect achieving the objectives immediately above?
How does the network use simple and easily recognizable boundaries to facilitate identification and enforcement of MPA regulations?
Where feasible, how does the network locate MPAs in areas where there is onsite presence to facilitate enforcement?
How does the network consider non-extractive uses, cultural resources, and existing fisheries and fishing regulations?
How does the network consider proximity to ports, safe anchorage sites, and points of access, to minimize negative impacts on people and increase benefits?
How does the network facilitate monitoring of MPA effectiveness by including well-studied sites, both in MPAs and unprotected areas?
How does the network consider positive and negative socioeconomic consequences?